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*Site Inspection Report*

**Shotgun Range Site  
Former Laredo Air Force Base  
Laredo, Texas**

Prepared for  
**U.S. Army Corps of Engineers,  
Tulsa District**

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**CH2MHILL**

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# Executive Summary

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This Site Inspection (SI) Report has been prepared for the United States Army Corps of Engineers (USACE), Tulsa District, by CH2M HILL. This report describes the investigation activities and presents the results and conclusions from the Site Inspection of the Shotgun Range (SGR) site at the former Laredo Air Force Base (LAFB), Laredo, Texas.

The former LAFB was used as a military base from 1942 to 1974. In 1974, the former base lands were either deeded or sold to other federal, state, and county agencies, private firms, and the City of Laredo. The former LAFB airfield is now operated as the Laredo International Airport (LIA).

The SGR site is located in an area northwest of the LIA, north of Hillside Road. The SGR area operated as a gunnery training area. The area was developed as a golf course during the 1960s, then as a residential area during the 1980s. No previous investigations related to potential environmental impacts due to DoD operations of the SGR site have been performed.

At the SGR site, 33 soil samples were analyzed for total lead and eight soil samples were analyzed for lead by the synthetic precipitation leachate procedure (SPLP). The analytical results were then compared to the Texas Natural Resource Conservation Commission (TNRCC) Risk Reduction Standard No. 2 (RRS2) GWP-Res, SAI-Res, and GW-Res Media-Specific Concentrations for lead in soils and groundwater. The results of the investigation indicate that:

- Lead is present in the SGR site soils at concentrations exceeding the TNRCC RRS2 GWP-Res standard (1.5 mg/kg). However, there is no site-specific background concentration for lead. The detected lead concentrations are generally low, with only nine of the soil samples (and one QC sample) containing over 20 mg/kg of total lead. Only one of the soil samples, SGRBHSO013000N1, exceeds the TNRCC RRS2 SAI-Res standard of 500 mg/kg.

- The high concentration exhibited by sample SGRBHSO013000N1 (36,200 mg/kg) appears to be an outlier caused by the inclusion of a piece of lead shot or fragment of bullet within the aliquot of soil analyzed by the laboratory. Therefore, the analytical result may not represent the actual lead content of the soil. The deeper sample collected from the same boring contained only an estimated 8.8 mg/kg of total lead. The three confirmation samples collected at the same property contained lead at 265 mg/kg or less.
- The soil samples exhibiting the highest concentrations of total lead were collected from the vicinity of the original firing line north of present day Hillside Road. Further, the detected lead concentrations for samples collected from a depth of 2.0 feet are lower than the concentrations reported for the samples collected from 0-0.5 feet depth in the same borings. Only borings SGRSB012 and SGRSB015 are exceptions, with the lead concentration for the deeper sample only slightly greater than for the shallower sample.
- The detected lead concentrations in the SPLP extracts for five of the eight samples (excluding the QC duplicate) analyzed for lead by SPLP were found to exceed the TNRCC RRS2 GW-Res standard of 0.015 mg/L (all SPLP samples were shallow samples). However, since the total lead concentrations are lower for the deeper soil samples than for the shallow soil samples, and the three samples for which the SPLP extract did not exceed the GW-Res standard had total lead concentrations greater than the highest total lead concentration for the deeper soil samples, it appears that significant leaching of the lead into the subsurface is not taking place.
- The potential for the lead detected in site soils to migrate into groundwater is limited by a number of factors: the clay content of the soil, the presence of carbonates (caliche) in the soil, the alkaline pH of the soil, and the limited rainfall in the Laredo area. Leaching of the lead into groundwater is therefore not likely.
- The most likely route of contaminant migration and exposure appears to be through direct contact (dermal contact and inhalation/ingestion) with site soils. As stated above, only one soil sample, an apparent outlier, was reported to contain lead at a concentration exceeding the SAI-Res standard.

- Erosion of site soils by wind and surface water has resulted in many homeowners at the SGR site purchasing topsoil to fill in low areas and to replace eroded soil. Therefore, it is uncertain whether the soil samples collected at the SGR site represent native soils that were present at the time of DoD disposal of Laredo AFB.

Based upon the above conclusions, CH2M HILL recommends that no further investigation of the SGR site is necessary.



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# Acronyms

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amsl	above mean sea level
AFB	Air Force Base
ARAR	Applicable or Relevant and Appropriate Requirement
AST	Above Ground Storage Tank
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	Constituent of Potential Concern
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DRO	Diesel Range Organics
DQO	Data Quality Objective
EPA	Environmental Protection Agency
FUDS	Formerly Used Defense Site
FTA	Fire Training Area
GRO	Gasoline Range Organics
GW-Res	TNRCC risk reduction standards for contaminants in groundwater at residential sites
GWP-Res	TNRCC risk reduction standards for contaminants in soils at residential sites, protective of groundwater
IDW	Investigation Derived Waste
IWTP	Industrial Waste Treatment Plant
LAFB	Laredo Air Force Base
LIA	Laredo International Airport
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MSC	Media Specific Concentration
PCB	Polychlorinated Biphenyl
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	parts per million
PRP	Potentially Responsible Party
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act of 1976
RRS	Risk Reduction Standard
SAI-Res	TNRCC risk reduction standards for contaminants in soils at residential sites, protective of soil/air ingestion
SARA	Superfund Amendments and Reauthorization Act
SGR	Shotgun Range

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SI	Site Inspection
SPLP	Synthetic Precipitation Leachate Procedure
SU	standard units
SVOC	Semivolatile Organic Compound
TAC	Texas Administrative Code
TDS	Total Dissolved Solids
TNRCC	Texas Natural Resource Conservation Commission
TPH	Total Petroleum Hydrocarbons
USACE	U.S. Army Corps of Engineers
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
VOC	volatile organic compound

**Section 1**  
**Introduction**

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# 1. Introduction

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This Site Inspection (SI) Report presents the findings of field activities associated with a SI of the Shotgun Range (SGR) site at the former Laredo Air Force Base (LAFB). The purpose of the SI was to assess the presence or absence of impacted soils at the site due to activities conducted during the time that the Department of Defense (DoD) controlled LAFB, and to recommend further actions (if any) for the site. The field activities were performed during May and June 1999, and included drilling several soil borings and the collection and analysis of soil samples. The investigation was conducted by CH2M HILL, under contract to the US Army Corps of Engineers (USACE).

**Section 2**  
**Site Background**

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## 2. Site Background

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### 2.1 Site Location and Description

The site being investigated is located in Laredo, Texas, along the Texas/Mexico border and approximately 150 miles south-southwest of the City of San Antonio. The SGR is located approximately 1/2-mile west of the northern end of the Laredo International Airport (Figure 2-1).

The SGR site consists of two areas. The larger, main portion of the SGR area is bordered on the south by present-day Hillside Road, on the west by present-day McPherson Road, on the east by mostly vacant city-owned property, and on the north approximately by present-day Hibiscus Lane. The smaller portion of the SGR area is a rectangular area centered just west of the present day intersection of Hemlock Drive and Poinsetta Drive (Figure 2-2).

The SGR area is generally flat, with a gentle west-northwestward slope. An intermittent stream/drainage ditch is located approximately 1/4-mile north of the SGR site. No other creeks, ponds, or drainage features are present. The area is currently developed for residential use (the Vista Hermosa and Alta Vista subdivisions). Construction is primarily single-family dwellings, although some condominiums and a church are present along Hillside Road. Commercial properties are located along McPherson Road, on the western side of the site.

### 2.2 Site History

#### 2.2.1 LAFB

On May 7, 1942, the U.S. Government acquired 2,085 acres for the construction of Laredo Army Air Corps Base (now known as former Laredo Air Force Base). The Government constructed runways and numerous facilities from 1942 to 1974. The Base was initially deactivated in June of 1947; however, it was reactivated during the Korean conflict. The former Base was then finally deactivated in March of 1974. Approximately 309 acres were either deeded or sold to other federal, state and county agencies, or private firms. The





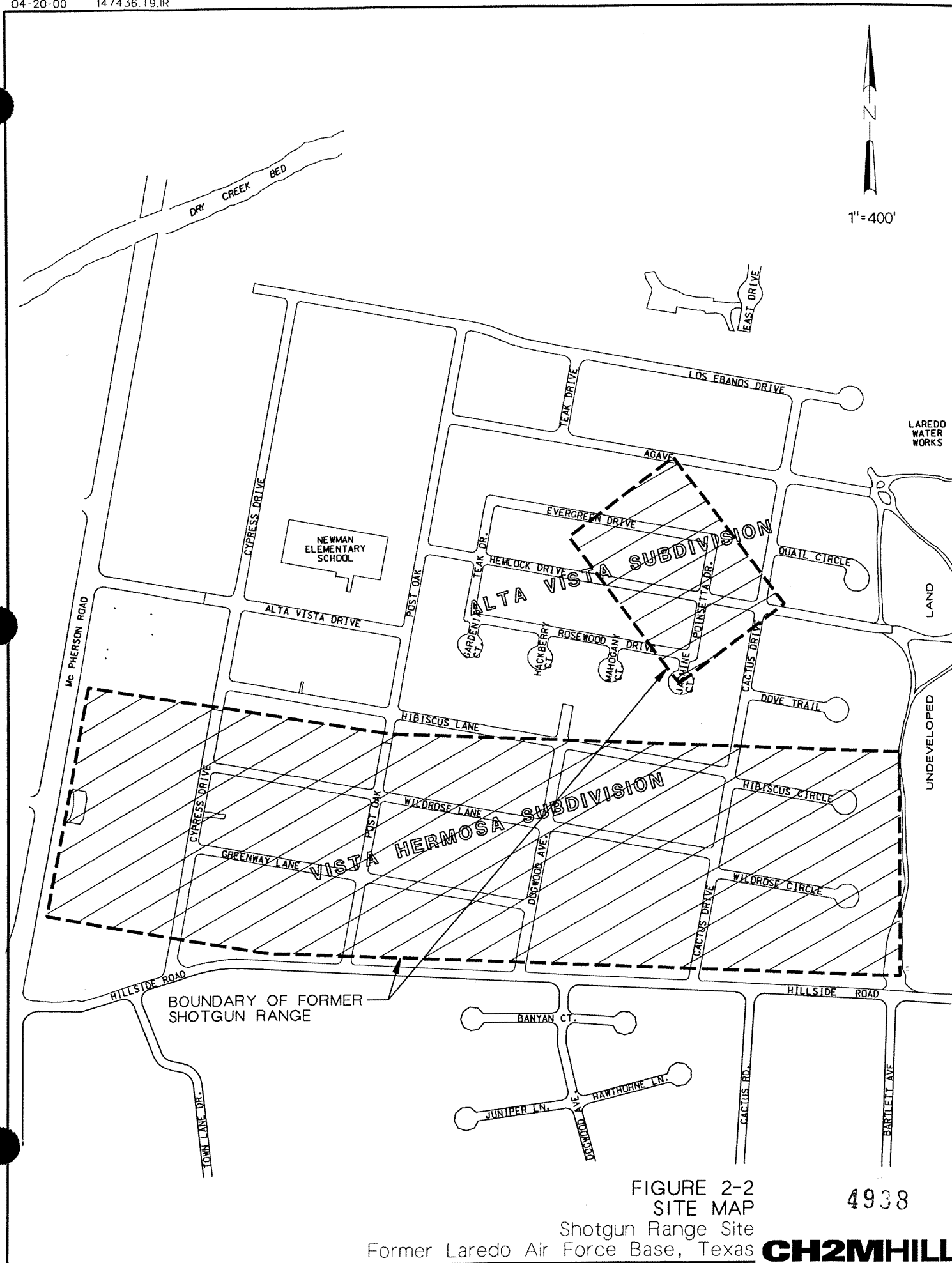


FIGURE 2-2  
SITE MAP

Shotgun Range Site  
Former Laredo Air Force Base, Texas

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remainder of the Base was deeded to the City of Laredo. The City of Laredo operates the former LAFB airfield as the LIA.

### 2.2.2 SGR Site

The SGR was part of the original base construction and was operated as a gunnery training area. At the SGR, crews were trained in the use of the types of machine guns and turrets utilized on military aircraft, as well as small arms. Based upon historical aerial photography, the original firing line was located along present-day Hillside Road, with the weapons fired northward (Figure 2-3). The firing line extended from present-day McPherson Road on the west to north of present-day Bartlett Avenue, on the east.

The use of the SGR during the period of 1947 through 1952, while the base was operated as Laredo's municipal airport, is unknown. However, based upon historical aerial photography from 1952 (USDA, 1952), it appears that the SGR was either unused during that time period or possibly used as a public firing range, as no obvious changes in land use are visible between the 1952 and earlier photographs.

During the 1960s, much of the SGR area was developed as a golf course. A 1973 aerial photograph indicates that the original firing line area had been incorporated into the golf course and another smaller firing line had been constructed further north, approximately in the present-day location of the intersection between Poinsetta Drive and Hemlock Drive. The direction of fire for the new firing line was apparently toward the north-northeast.

Based upon historical aerial photography, the residential development of the southern portion of the SGR began in approximately 1980, with the construction of the Vista Hermosa subdivision. Development of the Alta Vista subdivision apparently began approximately in the mid-1980s.

## 2.3 Summary of Previous Investigations

No previous investigations related to potential environmental impacts due to DoD operations of the SGR have been performed.

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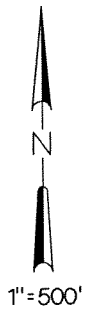


FIGURE 2-3  
FORMER SITE LAYOUT  
Shotgun Range Site  
Former Laredo Air Force Base, Texas

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## 2.4 Site Characteristics

### 2.4.1 Physiography

The area of investigation is located within Webb County, Texas. Webb County is situated within the Arid Plains physiographic province. The countryside around Laredo is characterized by small hills, covered with low-growing brushy vegetation and numerous arroyos and dry creek beds gently sloping toward the Rio Grande River, which lies approximately 2.5 miles west of the former LAFB (Parker, 1996; Raba-Kistner, 1996). The surface elevation of Webb County ranges from 372 feet above mean seal level (amsl) at the Rio Grande River up to 945 feet amsl. The elevation in the vicinity of the former LAFB is approximately 460 to 490 feet amsl.

### 2.4.2 Soils

The soils within the vicinity of the former LAFB are characterized by the US Department of Agriculture Natural Resource Conservation Service as belonging to the Catarina-Montell-Jimenez soil association, which are typically cracking, crumbly clay soils overlying stiff caliche. The soils at the SGR site have been further classified as Copita fine sandy loam, 0-3 percent slopes (USDA).

The Copita fine sandy loam is a moderately deep, nearly level to gently sloping soil, found on summits and side slopes of low hills and on broad, convex plains. The soil typically consists of a surface layer of brown fine sandy loam about 9-inches thick, below which is a subsoil of yellowish brown sandy clay loam and light yellowish brown sandy clay loam that extends to a depth of about 37 inches. Underlying the soil is weakly to strongly cemented, pale yellow sandstone. The soil is calcareous and moderately alkaline throughout. The soil is well drained, with a medium surface runoff. Permeability of the Copita series fine sandy loam is considered moderate with a range of 0.6 inches per hour (in./hr) to 2.0 in./hr (USDA).

### 2.4.3 Geology

The surface geology of Webb County is mostly Tertiary in age, with a narrow band of Quaternary-age alluvium along the Rio Grande flood plain. Webb County falls within the Rio Grande Embayment. The sedimentary rocks throughout Laredo are part of the Tertiary

(Eocene)-age Claiborne formation, which is composed of sandstone, sand mudstone, and shale.

#### **2.4.4 Meteorology**

Webb County receives a limited amount of rainfall per year, with an average annual precipitation of 20 to 22 inches (USACE, 1998). The average minimum temperature in January is 47°F, and the average maximum temperature in July is 99°F.

#### **2.4.5 Surface Water**

In the Laredo area, surface water runoff is directed toward the Rio Grande River, which lies approximately 2.5 miles west of the former LAFB area. The Rio Grande River is impounded in the International Amistad Reservoir (approximately 160 miles upstream of Laredo), and its flow is controlled by dam releases. The majority of the region's drinking water and irrigation water is obtained from the river.

An unnamed intermittent stream lies north of the SGR area. The only other major surface water resource in the area is Casa Blanca Lake located approximately one mile east of the LIA. Casa Blanca Lake was created by the impoundment of San Ygnacio Creek. Other creeks in the region are intermittent, draining into the Rio Grande.

#### **2.4.6 Groundwater Hydrogeology**

##### **Regional Hydrogeology**

Webb County lies atop the Eocene outcrop/downdip Carrizo-Wilcox aquifer. The regional groundwater flow direction is toward the southwest and west at an estimated velocity of 5 feet per day. Potable water for the area is obtained through the City of Laredo public water supply system and is collected entirely from the Rio Grande River (USACE, 1998).

##### **Local Hydrogeology**

No shallow groundwater was encountered during the present investigation at the SGR site. However, shallow groundwater was encountered during a previous investigation at another site located less than 1/2-mile east of the SGR site. At the other site, groundwater was encountered at a depth of approximately 8 to 10 feet bgs, with a flow gradient toward the north, generally reflecting surface topography in that area (CH2M HILL, 1999). It is likely

that shallow groundwater at the SGR site is present at about the same depths and with the flow gradient similarly reflecting surface topography, sloping toward the west-northwest.

**Section 3**  
**Field Investigation Activities**

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## 3. Field Investigation Activities

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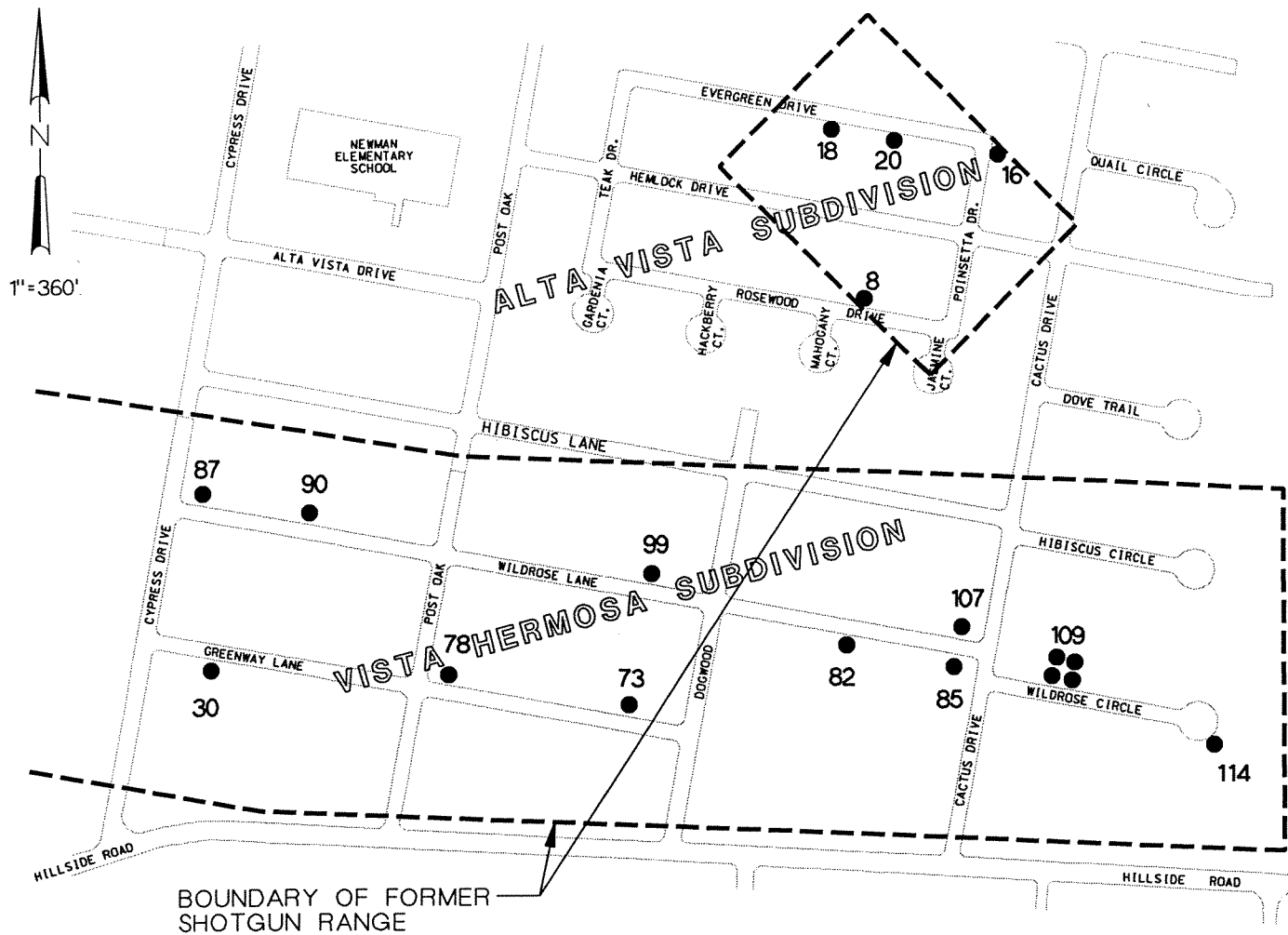
The field investigation activities for the SI at the SGR site were performed on May 21 through May 24, 1999, with confirmation sampling activities performed on June 24, 1999. The confirmation sampling was performed in order to collect additional samples from one of the first-round soil sampling locations. The activities consisted primarily of drilling the shallow soil borings and collecting and analyzing the subsurface soil samples. The procedures utilized for the performance of these activities are discussed below.

### 3.1 Soil Boring Drilling and Sampling

A total of 18 soil borings (soil borings SGRSB001 through SGRSB018) were drilled at the SGR site. The boring locations were chosen to assess the presence of soil contamination in areas most likely to be impacted due to past site activities (areas just beyond the firing lines of the former SGR). Soil samples were collected from borings SGRSB001 through SGRSB015 during the initial investigation in May 1999. Confirmation samples were collected from borings SGRSB016 through SGRSB018 in June 1999. The confirmation sampling event was performed to collect additional samples to further assess one of the initial sampling locations. The soil boring locations are presented on Figure 3-1.

Prior to mobilization to the field, Right-of-Entry agreements were obtained from 19 property owners in the area formerly occupied by the SGR facility. Fifteen of the properties were chosen for sampling, based upon each property's proximity to the SGR firing line and to each other. The property owners were notified of the upcoming sampling activities approximately 48 hours prior to the initiation of the activities. The properties that were sampled are listed in Table 3-1.

Generally, one soil boring was advanced at each property. Only one property, USACE Investigation ID No. 109, was the location of multiple borings: the initial sampling location (SGRSB013) and the three confirmatory sampling locations (SGRSB016 through SGRSB018). The soil boring location(s) at each property were chosen in order to minimize impact to the landscaping at the property. If a small area of bare soil was present (and not apparently



BORING ID NO.	USACE INVESTIGATION ID NO.	LOT NO.	BLOCK NO.	SUBDIVISION
SGRBH001	73	9	5	Vista Hermosa
SGRBH002	78	14	5	Vista Hermosa
SGRBH003	30	2	2	Vista Hermosa
SGRBH004	87	14	7	Vista Hermosa
SGRBH005	90	11	7	Vista Hermosa
SGRBH006	99	9	8	Vista Hermosa
SGRBH007	82	4	6	Vista Hermosa
SGRBH008	107	8	9	Vista Hermosa
SGRBH009	85	7	6	Vista Hermosa
SGRBH010	18	7	2	Alta Vista
SGRBH011	20	9	2	Alta Vista
SGRBH012	16	17, 18	1	Alta Vista
SGRBH013	109	17	23	Vista Hermosa
SGRBH016	-	-	-	-
SGRBH017	-	-	-	-
SGRBH018	-	-	-	-
SGRBH014	114	22	23	Vista Hermosa
SGRBH015	8	14	3	Alta Vista

## LEGEND

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USACE INVESTIGATION  
I.D. NUMBER

BORING LOCATION

FIGURE 3-1  
SOIL BORING LOCATIONS  
Shotgun Range Site  
Former Laredo Air Force Base, Texas

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**TABLE 3-1**  
**Properties Sampled During SGR Investigation**  
*SGR Site, Former Laredo Air Force Base, Laredo, Texas*

<b>Boring ID No.</b>	<b>USACE Investigation ID No.</b>	<b>Lot No.</b>	<b>Block No.</b>	<b>Subdivision</b>
SGRBH001	73	9	5	Vista Hermosa
SGRBH002	78	14	5	Vista Hermosa
SGRBH003	30	2	2	Vista Hermosa
SGRBH004	87	14	7	Vista Hermosa
SGRBH005	90	11	7	Vista Hermosa
SGRBH006	99	9	8	Vista Hermosa
SGRBH007	82	4	6	Vista Hermosa
SGRBH008	107	8	9	Vista Hermosa
SGRBH009	85	7	6	Vista Hermosa
SGRBH010	18	7	2	Alta Vista
SGRBH011	20	9	2	Alta Vista
SGRBH012	16	17, 18	1	Alta Vista
SGRBH013 SGRBH016 SGRBH017 SGRBH018	109	17	23	Vista Hermosa
SGRBH014	114	22	23	Vista Hermosa
SGRBH015	8	14	3	Alta Vista

caused by the presence of contamination), that area was chosen for the boring location. If no areas of bare soil were present, then a location that would not be readily visible from the street (such as behind a bush or brick wall) was chosen. A small area of turf would be cut and removed prior to drilling the boring, then replaced after the boring and sampling activities were complete. The presence of underground sprinkler systems and utility lines were also considered when choosing a boring location at a particular property. Texas One Call and the City of Laredo were contacted for identification of utilities prior to the field sampling effort.

The soil borings were drilled by CH2M HILL personnel, using a 4-inch diameter, stainless-steel hand auger. For borings SGRSB001 through SGRSB015, each of the soil borings was

advanced to a total depth of approximately 2 feet bgs. Borings SGRSB016 through SGRSB018, advanced during the confirmation sampling, were advanced to a depth of only about 0.5 feet.

During advancement of the soil borings, the recovered soils were logged according to the Unified Soil Classification System (USCS). The soil type, color, moisture content, staining (if any), odors (if any) and other factors were described. Copies of the soil boring logs are presented in Appendix A. Because of the minimal depth of borings SGRSB016 through SGRSB018, soil boring logs were not recorded for those borings. However, the soil descriptions were recorded in the field notebook. The soils encountered in all three confirmation sample borings consisted of moist, dark yellowish-brown (10YR 4/4), sandy silt (ML-SM), with some small gravel. This is similar to the soils encountered in the other SGR site borings. The soil cuttings were placed on plastic sheeting during advancement of the borings.

For borings SGRSB001 through SGRSB015, soil samples were collected at depths of approximately 0-0.5 feet and 2.0 feet, bgs. Soil samples from borings SGRSB016 through SGRSB018 were collected from a depth of approximately 0-0.5 feet bgs. Upon the recovery of soil cuttings from the desired sample interval, the cuttings were placed into a stainless-steel bowl, then mixed by hand. The soil sample was then placed into an appropriate laboratory-supplied container, properly labeled, and placed into an ice-cooled chest, pending shipment to the analytical laboratory.

Each soil boring was backfilled utilizing commercially available topsoil, purchased at a local discount department store. The topsoil backfill material was compacted during placement in order to prevent the later development of a depression at the boring location when the lawn was watered. After each boring was backfilled, the removed portion of turf (if any) was replaced and a marker flag was placed at the boring location to facilitate later surveying of the location. Because borings SGRSB016 through SGRSB018 were drilled during the confirmation sampling, their locations were not surveyed. However, their locations were measured in the field relative to boring SGRSB013, which had been surveyed.

The soil cuttings generated during the drilling and sampling activities were temporarily placed into a 5-gallon bucket then later transferred into a DOT-approved, steel 55-gallon drum. The drum of soil cuttings was placed on LIA property for storage, pending disposal.

During the confirmation sampling, the homeowners at USACE Investigation ID No. 109 (the property where borings IWTPSB013 and IWTPSB016 through IWTPSB018 were drilled) spoke with the CH2M HILL field personnel regarding the soil at their property. The homeowners mentioned that over the years, several truck-loads of soil had been brought in and placed around the property to build up areas and replace eroded soil. They said that most of their property at one time or another probably had received fill soil. They further stated that it was common for other homeowners in the neighborhood to use fill soil to replace eroded soil. The homeowners had no knowledge of where the fill soils that had been placed on their property may have originated. They also could not be sure whether or not the sampling locations at their property were definitely within filled areas. It is noted, however, that the soils observed during sampling on their property appeared to be similar to the soils observed elsewhere at the SGR site.

### 3.2 Soil Sample Analysis

Laboratory analysis for the SGR site soil samples was provided by Southwest Laboratories of Oklahoma, in Broken Arrow Oklahoma (Southwest Labs). The soil samples collected during the first round of sampling at the SGR site were submitted for analysis of total lead by EPA Test Method 6010. Due to apparently elevated concentrations of lead for six of the samples (including one of the QC field duplicate samples), five of the six samples exhibiting a total lead concentration exceeding 20 milligrams per kilogram (mg/kg) (SGRBHSO002000N1, SGRBHSO004000N1, SGRBHSO005000N1, SGRBHSO006000FD1, and SGRBHSO009000N1) were resubmitted for analysis of lead by the synthetic precipitation leachate procedure (SPLP). The purpose of the re-analysis was to assess the likelihood for the lead present in the soil to leach into groundwater.

Although sample SGRBHSO013000N1 was reported to contain over 20 mg/kg of total lead, the sample was not analyzed for SPLP lead because the total lead concentration reported for that sample was significantly greater than the concentrations reported for the other samples. Rather, confirmatory soil samples (SGRBHSO016000N1, SGRBHSO017000N1, and

SGRBHSO018000N1) were collected at the property where sample SGRBHSO013000N1 had been collected. The confirmation soil samples were submitted for analysis of total lead and for SPLP lead.

During the re-analysis of the initial SGR soil samples and the analysis of the SGR confirmation soil samples, some laboratory errors occurred:

- The initial sample SGRSBSO009000N1 was not analyzed for SPLP lead as requested. Apparently due to a mis-reading of the sample Chain of Custody, sample SGRSBSO001000N1 was analyzed instead.
- The five initial samples that were re-submitted for SPLP lead analyses were mistakenly re-analyzed for total lead, as well. The results of the total lead re-analysis are included in the discussion of the investigation results presented in Section 7 of this report.
- The confirmation sampling program included a sample intended for analysis as a MS/MSD sample (sample SGRSBSO018000MS1). The laboratory mistakenly analyzed the sample as a regular field sample. Because it was a split sample from SGRSBSO018000N1, sample SGRSBSO018000MS1 can be considered as a field QC duplicate sample for SGRSBSO018000N1.
- For the three confirmation samples, the laboratory mistakenly re-analyzed the samples for total lead. The results of the total lead re-analysis of the confirmation samples are included in the discussion of the investigation results presented in Section 7 of this report.

None of the laboratory errors appear to have the potential to affect the quality of the analytical data generated from the field effort or to affect the quality of this SI report.

### **3.3 Field QA/QC Procedures**

#### **3.3.1 Collection of Analytical Samples**

QA/QC procedures utilized in the collection of the SGR site soil samples included proper decontamination of reusable sampling equipment, the use of disposable sampling

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equipment (gloves), and the proper handling of collected samples. Decontamination procedures are discussed in Section 3.3.4.

Disposable equipment was utilized when possible during the investigation in order to reduce the potential for cross contamination of samples. Disposable materials utilized during the investigation included disposable nitrile gloves and plastic sheeting. New disposable gloves were utilized for each soil sample collection. New pieces of plastic sheeting were utilized at each boring to contain the soil cuttings and to protect the ground surface from the cuttings.

Proper sample handling included the use of new laboratory-supplied and laboratory-preserved sample containers, proper labeling of the sample containers, placement of the samples into ice-cooled chests immediately upon sample collection, maintenance of detailed notes regarding sample collection, maintenance of sample chain-of custody documentation, and proper packing of the samples for shipment to avoid breakage and to maintain the temperature of the samples at or below 4°C.

### 3.3.2 Collection of QA/QC Samples

In order to aid in the validation and assessment of the quality of the data collected during the SI, various QA/QC samples were collected during the field investigation activities. These samples included QA and QC field duplicates and equipment blanks. Table 3-2 presents the relationships between the regular soil samples collected during the investigation and the corresponding QA/QC samples.

**TABLE 3-2**  
QA/QC Sample Correlation  
SGR Site, Former Laredo Air Force Base, Laredo, Texas

QA/QC Sample ID	Sample Type	Associated Regular Sample ID
SGRBHSO006000FD1	QC duplicate	SGRBHSO006000N1
SGRBHSO006000FD2	QA duplicate	SGRBHSO006000N1
SGRBHSO006002FD1	QC duplicate	SGRBHSO006002N1
SGRBHSO006002FD2	QA duplicate	SGRBHSO006002N1
SGRBHSO010000FD1	QC duplicate	SGRBHSO010000N1
SGRBHSO010000FD2	QA duplicate	SGRBHSO010000N1

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**TABLE 3-2**  
**QA/QC Sample Correlation**  
*SGR Site, Former Laredo Air Force Base, Laredo, Texas*

<b>QA/QC Sample ID</b>	<b>Sample Type</b>	<b>Associated Regular Sample ID</b>
SGRBHWQ012000EB1	Equipment Blank	SGRBHSO012000N1
SGRBHWQ015000EB1	Equipment Blank	SGRBHSO015000N1
SGRBHSO018000MS1	QC duplicate *	SGRBHSO018000N1

\* Sample was intended for matrix/matrix spike analysis but was inadvertently analyzed by the laboratory as a QC field duplicate.

During the second sampling event performed at the SGR site, no QA/QC samples were collected. However, due to a laboratory error, one sample (SGRBHSO018000MS1) that had been intended as additional volume for a laboratory matrix spike analysis was analyzed as another regular field sample. Sample SGRBHSO018000MS1 had been collected as a split from sample SGRBHSO018000N1. Therefore, SGRBHSO018000MS1 can be considered as a QC field duplicate sample for SGRBHSO018000N1.

During the SI field activities, QA and QC field duplicate soil samples were collected at a frequency of one QA and one QC field duplicate for every ten soil samples. These samples were collected by preparing every tenth soil sample in triplicate. One of the triplicate samples was submitted to the contract analytical laboratory (Southwest Labs) for analysis as a regular field sample. The second triplicate sample was submitted to the contract analytical laboratory as a QC field duplicate sample. The third triplicate sample was submitted to a second laboratory (Environmental Testing & Consulting, of Memphis, Tennessee) to be analyzed as a QA field duplicate sample. To collect the QA and QC field duplicate samples, the recovered soil cuttings from the desired interval were composited prior to placement into the sample containers. The QA and QC field duplicate samples were analyzed for the same parameters as the regular field soil samples.

During soil sampling activities, equipment blank samples were prepared at a frequency of one blank per 20 soil samples. Two equipment blanks were prepared for the SGR site. The equipment blanks were prepared by pouring commercially available distilled water over or through the decontaminated hand auger and into the decontaminated stainless steel bowl utilized for compositing the soil samples. The rinseate was then transferred into appropriate



laboratory-supplied sample containers. The equipment blanks were analyzed for the same parameters as the regular field soil samples.

### 3.3.3 Sample Identification

The soil samples collected during the SGR site SI were each assigned unique sample identification numbers based upon the following scheme:

#### SGRBHmm###dddqqq

**SGR** = Shotgun Range site

**BH** = Bore Hole

**mm** = type of matrix

SO for soil

WQ for water quality QA/QC samples (equipment blanks)

**###** = sequential number for location

**ddd** = beginning depth of sampled interval (000 for 0-0.5 feet, 002 for two feet)

**qqq** = type of sample for QA/QC purposes

N1 for normal samples

EB1 for equipment blank samples

FD1 for QC samples

FD2 for QA samples

MS1 for matrix spike samples

A table cross referencing the field sample ID numbers with the laboratory sample ID numbers is presented as Table 3-3.

**TABLE 3-3**

Laboratory/Field Sample ID Cross Reference  
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Lab ID	Sample ID	Lab ID	Sample ID
38707.01	SGRBHSO001000N1	38708.04	SGRBHSO011000N1
38707.02	SGRBHSO001002N1	38708.05	SGRBHSO011002N1
38707.03	SGRBHSO002000N1	38708.06	SGRBHWQ012000EB1
38707.04	SGRBHSO002002N1	38708.07	SGRBHSO012000N1
38707.05	SGRBHSO003000N1	38708.08	SGRBHSO012002N1
38707.06	SGRBHSO003002N1	38708.09	SGRBHSO013000N1
38707.07	SGRBHSO004000N1	38708.10	SGRBHSO013002N1

**TABLE 3-3**  
Laboratory/Field Sample ID Cross Reference  
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Lab ID	Sample ID	Lab ID	Sample ID
38707.08	SGRBHSO004002N1	38708.11	SGRBHSO014000N1
38707.09	SGRBHSO005000N1	38708.12	SGRBHSO0140002N
38707.10	SGRBHSO005002N1	38708.13	SGRBHWQ015000EB1
38707.11	SGRBHSO006000N1	38708.14	SGRBHSO015000N1
38707.12	SGRBHSO006000FD1	38708.15	SGRBHSO015002N1
38707.13	SGRBHSO006002N1	39086.01	SGRBHSO002000N1
38707.14	SGRBHSO006002FD1	39086.02	SGRBHSO004000N1
38707.15	SGRBHSO007000N1	39086.03	SGRBHSO005000N1
38707.16	SGRBHSO007002N1	39086.04	SGRBHSO006000FD1
38707.17	SGRBHSO008000N1	39086.05	SGRBHSO009000N1
38707.18	SGRBHSO008002N1	39177.01	SGRBHSO016000N1
38707.19	SGRBHSO009000N1	39177.02	SGRBHSO017000N1
38707.20	SGRBHSO0010000N1	39177.03	SGRBHSO018000N1
38707.21	MS from SGRBHSO0010000N1	39177.04	SGRBHSO018000MS1
38707.22	MSD from SGRBHSO0010000N1	39390.01	SGRBHSO016000N1
38708.01	SGRBHSO009002N1	39390.02	SGRBHSO017000N1
38708.02	SGRBHSO010000FD1	39390.03	SGRBHSO018000N1
38708.03	SGRBHSO010002N1	39390.04	SGRBHSO018000MS1

### 3.3.4 Decontamination Procedures

Prior to initiation of sampling activities, as well as between sampling locations, the hand auger, stainless-steel bowls, stainless-steel spoons, and other sampling implements were decontaminated using a distilled water and Liquinox wash followed by a distilled water rinse. The clean sampling tools were allowed to air dry before reuse.

## 3.4 Surveying

During the performance of the field investigation activities, the location of each soil boring was marked with a small flag for identification. Following the completion of the field

investigation activities, each soil boring was surveyed using Global Positioning System (GPS) equipment. The horizontal location and vertical elevation of each sampling location were measured (except for the SGR site second round sampling event locations, which were measured in the field by CH2M HILL personnel relative to a previously surveyed location). The horizontal coordinates for each location were determined relative to the existing Texas State Plane coordinates, with minimum accuracy of  $\pm 0.1$  foot. Vertical elevations were determined relative to the 1929 National Vertical Geodetic Datum, with an accuracy of  $\pm 0.01$  foot. Land surveying services for this project were provided by Howland Surveying of Laredo, Texas. Survey data is summarized in Table 3-4.

**TABLE 3-4**  
GPS Survey Data for IWTP and SGR Sampling Locations  
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Location	Northing	Easting	Elevation (ft, amsl)
SGRSB001	684175	1683222	466.03
SGRSB002	684221	1682893	457.64
SGRSB003	684265	1682393	449.17
SGRSB004	684589	1682406	449.17
SGRSB005	684564	1682578	452.80
SGRSB006	684424	1683301	466.00
SGRSB007	681307	1683691	475.95
SGRSB008	684311	1683925	481.87
SGRSB009	684272	1683905	401.66
SGRSB010	685327	1683677	467.36
SGRSB011	685303	1683794	472.03
SGRSB012	685293	1683990	486.10
SGRSB013	684223	1684116	487.16
SGRSB014	684100	1684421	498.25
SGRSB015	684997	1683706	475.74

amsl = above mean sea level

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### 3.5 Management of Investigation-Derived Waste

Investigation-derived waste (IDW) generated during the SI included soil cuttings from soil boring activities, decontamination water, spent personal protective equipment (PPE), general trash, and miscellaneous contaminated materials (paper towels, rags, etc.). General trash was placed into plastic trash bags and disposed in a solid waste dumpster near the LIA. The remaining wastes were placed into 55-gallon steel drums, properly labeled, and staged on LIA property, pending disposal. Different types of waste (such as soils and waters) were not mixed. However, spent PPE and other solids were mixed with the soils. This mixing was done upon the advice of personnel from EET, Inc. of Austin, Texas, which provided waste disposal services for the project. One drum of soil cuttings, waste PPE, and plastic sheeting was generated. Approximately 10 gallons of decontamination waters were generated during the investigation. Due to the limited amount of decontamination waters that were generated, the decontamination waters were combined with decontamination waters generated at the same time during the investigation of another site (the Industrial Waste Treatment Plant) at the former LAFB.

Composite samples of the wastes were collected and analyzed by EET in order to characterize the wastes for disposal. The wastes were determined to be non-hazardous. The waste PPE and waste soils were disposed by EET at the City of Laredo Landfill, near Laredo, Texas. The decontamination waters were disposed at the Browning-Ferris Industries' Sunset Farms Landfill in Austin, Texas. The wastes generated during this investigation were disposed together with the wastes generated during the Industrial Waste Treatment Plant investigation. Copies of the waste disposal documentation are presented in Appendix B.

**Section 4**  
**Results of Investigation**

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## 4. Results of Investigation

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A total of 33 soil samples, excluding QA and QC duplicate samples, were collected and analyzed during the SGR site SI. All of the soil samples were analyzed for total lead. Eight of the soil samples (excluding a QC duplicate sample) were also analyzed for lead by SPLP. The laboratory analytical data reports are presented together with the data validation report and validation check sheets in Appendix C. The detected concentrations of lead are compared to the TNRCC Risk Reduction Standard No. 2 (RRS2) Media-Specific Concentrations (MSCs). Total lead results are compared to the GWP-Res and SAI-Res MSCs. SPLP lead results are compared to the GW-Res MSC. The GWP-Res is the soil MSC for residential use based on groundwater protection. The SAI-Res is the soil MSC for residential use based on inhalation, ingestion, and dermal contact. The GW-Res is the groundwater MSC for residential use. The residential MSCs were considered for this investigation because the SGR site is currently developed as a residential area.

### 4.1 Site Soils

The soils encountered at the SGR site during soil sampling activities consisted primarily of dark yellowish brown to light yellowish brown, dry to moist, soft to moderately stiff, sandy silt. Small pieces of gravel were occasionally present. Gypsum was often present at depths of 6 inches or more. Groundwater was not encountered during the SGR site soil sampling activities.

### 4.2 Soil Analytical Results

A total of 33 soil samples, excluding QA/QC samples, were collected at the SGR site. Thirty samples were collected during the initial (May 1999) sampling event and three samples were collected during the confirmation sampling event (June 1999). All 33 soil samples were analyzed for total lead. Five samples from the May 1999 sampling event, including one QC sample, were also analyzed for lead by SPLP and re-analyzed for total lead (the regular sample associated with the QC sample was not analyzed for lead by SPLP or re-analyzed for

total lead). The three samples from the confirmation sampling event were also analyzed for lead by SPLP and re-analyzed for total lead. Five of the soil samples collected during the May 1999 sampling event were analyzed for pH and moisture content.

#### 4.2.1 Total Lead

The analytical results for the lead analysis of the SGR site soil samples are presented in Table 4-1. The total lead concentrations for the SGR soil samples range from an estimated 3.4 mg/kg for sample SGRBHSO010002N1 to an estimated 36,200 mg/kg for sample SGRSBSO013000N1. The average concentration for the initial analysis is 1,130 mg/kg. If sample SGRBHSO013000N1 is considered an outlier and the result is ignored, then the maximum total lead concentration is 269 mg/kg for sample SGRBHSO005000N1, and the average total lead concentration is then 29.7 mg/kg. Most samples were reported to have a total lead concentration below 20 mg/kg. Only three samples (SGRBHSO005000N1, SGRBHSO013000N1, and SGRBHSO018000N1) exceed 200 mg/kg.

**TABLE 4-1**  
SGR Site Soil Sample Analytical Results, Total Lead  
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)	Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)
SGRBHSO001000N1	5/21/99	0-0.5	18.9	SGRBHSO009000N1	5/21/99	0-0.5	38.1
SGRBHSO001000N1	5/21/99	0-0.5	21.4 J*	SGRBHSO009002N1	5/21/99	2	13.4 J
SGRBHSO001002N1	5/21/99	2	12.8	SGRBHSO010000N1	5/21/99	0-0.5	3.8
SGRBHSO002000N1	5/21/99	0-0.5	50.8	SGRBHSO010000FD1	5/21/99	0-0.5	3.8 J
SGRBHSO002000N1	5/21/99	0-0.5	54.8*	SGRBHSO010002N1	5/21/99	2	3.4 J
SGRBHSO002002N1	5/21/99	2	7.9	SGRBHSO011000N1	5/21/99	0-0.5	5.0 J
SGRBHSO003000N1	5/21/99	0-0.5	7	SGRBHSO011002N1	5/21/99	2	5.2 J
SGRBHSO003002N1	5/21/99	2	6.4	SGRBHSO012000N1	5/21/99	0-0.5	9.2 J
SGRBHSO004000N1	5/21/99	0-0.5	68.9	SGRBHSO012002N1	5/21/99	2	6.1 J
SGRBHSO004000N1	5/21/99	0-0.5	71.7*	SGRBHSO013000N1	5/22/99	0-0.5	36,200 J
SGRBHSO004002N1	5/21/99	2	6.2	SGRBHSO013002N1	5/22/99	2	8.8 J
SGRBHSO005000N1	5/21/99	0-0.5	269	SGRBHSO014000N1	5/22/99	0-0.5	10.3 J
SGRBHSO005000N1	5/21/99	0-0.5	134*	SGRBHSO014002N1	5/22/99	2	6.4 J
SGRBHSO005002N1	5/21/99	2	7.8	SGRBHSO015000N1	5/22/99	0-0.5	9.9 J
SGRBHSO006000N1	5/21/99	0-0.5	10 J	SGRBHSO015002N1	5/22/99	2	15.4 J
SGRBHSO006000FD1	5/21/99	0-0.5	22.9 J	SGRBHSO016000N1	6/24/99	0-0.5	23.3

**TABLE 4-1**  
SGR Site Soil Sample Analytical Results, Total Lead  
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)	Sample ID	Sample Date	Sample Depth (ft)	Total Lead (mg/kg)
SGRBHSO006000FD1	5/21/99	0-0.5	14.4 J*	SGRBHSO016000N1	6/24/99	0-0.5	17.1 J*
SGRBHSO006002N1	5/21/99	2	8.3	SGRBHSO017000N1	6/24/99	0-0.5	22.6
SGRBHSO006002FD1	5/21/99	2	7.2	SGRBHSO017000N1	6/24/99	0-0.5	21.7 J*
SGRBHSO007000N1	5/21/99	0-0.5	10.9	SGRBHSO018000N1	6/24/99	0-0.5	265
SGRBHSO007002N1	5/21/99	2	6.2	SGRBHSO018000N1	6/24/99	0-0.5	76.5*
SGRBHSO008000N1	5/21/99	0-0.5	9.4	SGRBHSO018000MS1	6/24/99	0-0.5	171
SGRBHSO008002N1	5/21/99	2	4.3	SGRBHSO018000MS1	6/24/99	0-0.5	187*

\* - Reanalysis

J - Estimated

Note: all detected concentrations exceed the TNRCC RRS2 GWP-Res standard of 1.5 mg/kg.

Generally, the results of the re-analysis for total lead corresponded well with the initial analysis. Only sample SGRBHSO018000N1 had a significant difference between the two analyses, with 265 mg/kg for the initial analysis and 76.5 mg/kg for the re-analysis. The maximum total lead among all samples upon re-analysis is 134 mg/kg for sample SGRBHSO005000N1 (excluding sample SGRSB013000N1). Using the results of the re-analysis, the overall average total lead concentration is slightly lower, at 1,120 mg/kg if the result for sample SGRBHSO013000N1 is included. The average total lead concentration if sample SGRBHSO013000N1 is not included is 19.1 mg/kg.

All of the detected lead concentrations exceed the TNRCC RRS2 GWP-Res standard for lead of 1.5 mg/kg. However, no site-specific background concentration for lead has been established. Only one sample, SGRBSO013000N1, exceeds the TNRCC RRS2 SAI-Res standard of 500 mg/kg.

#### 4.2.2 SPLP Lead

The analytical results for the SPLP lead analysis of the SGR site soil samples are presented in Table 4-2. Eight soil samples (SGRBHSO001000N1, SGRBHSO002000N1, SGRBHSO004000N1, SGRBHSO005000N1, SGRBHSO006000FD1, SGRBHSO016000N1, SGRBHSO017000N1, and SGRBHSO018000N1), as well as one QC sample



(SGRBHSO018000MS1) were analyzed for lead by SPLP. SPLP lead concentrations ranged from an estimated 0.0046 mg/L for sample SGRBHSO006000FD1 to 0.857 mg/L for sample

**TABLE 4-2**  
SGR Site Soil Sample Analytical Results, SPLP Lead  
SGR Site, Former Laredo Air Force Base, Laredo, Texas

Sample ID	Sample Date	SPLP Lead (mg/L)	Total Lead (mg/kg)
SGRBHSO002000N1	5/21/99	0.0307 J	50.8
SGRBHSO004000N1	5/21/99	0.0735 J	68.9
SGRBHSO005000N1	5/21/99	0.857	269
SGRBHSO006000FD1	5/21/99	0.0046 J	22.9
SGRBHSO001000N1	5/21/99	0.0471 J	18.9
SGRBHSO016000N1	6/24/99	0.0111 J	23.3
SGRBHSO017000N1	6/24/99	0.0135 J	22.6
SGRBHSO018000N1	6/24/99	0.016 J	265
SGRBHSO018000MS1**	6/24/99	0.218 J	171

J – Estimated

\*\* - QC duplicate sample for SGRBHSO018000N1

Shading indicates exceedance of the TNRCC RRS2 GW-Res standard of 0.015 mg/L

SGRBHSO005000N1. The second-highest SPLP lead concentration is an estimated 0.0735 mg/L for sample SGRBHSO004000N1. The average SPLP lead concentration is 0.141 mg/L.

Both SGRBHSO018000N1 and SGRBHSO018000MS1 were analyzed for SPLP lead. SGRBHSO018000MS1 is a field split of SGRBHSO018000N1. However, the reported SPLP lead concentrations differ significantly, with an estimated 0.016 mg/L for the N1 sample and an estimated 0.218 mg/L for the MS1 sample. Although care was taken to avoid inclusion of bullet fragments or lead shot in the collected soil samples, the most likely reason for the difference in SPLP lead concentrations between the field sample and the split sample is that a fragment of lead may have been included in the aliquot of soil analyzed from the split sample.

Of the eight samples (excluding the QC duplicate sample) analyzed for SPLP lead, the SPLP extracts from five of the samples were reported to exceed the TNRCC RRS 2 GW-Res standard of 0.015 mg/L for lead in groundwater for residential areas.

### 4.2.3 pH and Percent Moisture

Five soil samples (SGRBHSO003000N1, SGRBHSO005002N1, SGRBHSO008000N1, SGRBHSO010002N1, and SGRBHSO012000N1) were submitted for pH and percent moisture analysis. Values for pH range from 7.8 SU for sample SGRBHSO008000N1 to 8.6 SU for sample SGRBHSO003000N1. Moisture contents range from 6.0 percent for sample SGRBHSO012000N1 to 10.7 percent for sample SGRBHSO005002N1. No correlation is apparent between pH and moisture content or between pH or moisture content and depth. The pH and moisture content data are presented in Table 4-3.

**TABLE 4-3**  
SGR Site Soil Sample Analytical Results, pH and Moisture Content  
*SGR Site, Former Laredo Air Force Base, Laredo, Texas*

Sample ID	Sample Date	pH (SU)	Moisture Content (%)
SGRBHSO003000N1	5/21/99	8.6	8.8
SGRBHSO005002N1	5/21/99	7.9	10.7
SGRBHSO008000N1	5/21/99	7.8	7.8
SGRBHSO010002N1	5/21/99	7.9	8.0
SGRBHSO012000N1	5/21/99	8.1	6.0

SU – Standard Units

## 4.3 Nature and Extent of Contamination

Based upon the historical use of the SGR site as a firing range and the analytical results for the soil samples, the potential contaminant of concern for SGR site soils is lead. Detectable concentrations of total lead were reported for all of the SGR site soil samples. Lead was the only constituent for which the soil samples collected during this SI were analyzed.

### 4.3.1 Total Lead

For the soil samples collected from a depth of 0-0.5 feet, the samples with the highest reported concentrations of total lead (greater than 20 mg/kg) were collected from the area just north of the original firing line (just north of Hillside Road). For the 2.0 feet depth samples, no such trend regarding the reported concentrations is apparent. However, the samples collected at a depth of 0-0.5 feet generally had higher concentrations of lead than the samples collected at a depth of 2.0 feet in the same borings. Only the samples collected

from borings SGRSB012 and SGRSB015 are exceptions, with the detected concentrations for the deeper samples slightly exceeding the concentrations for the shallower samples. Overall, the average total lead concentration for the 0-0.5 feet samples (excluding sample SGRBHSO013000N1) is 48.9 mg/kg. The average total lead concentration for the 2.0 feet samples is 7.91 mg/kg (only the original analytical results [none of the re-analyses] were used to calculate the average concentrations).

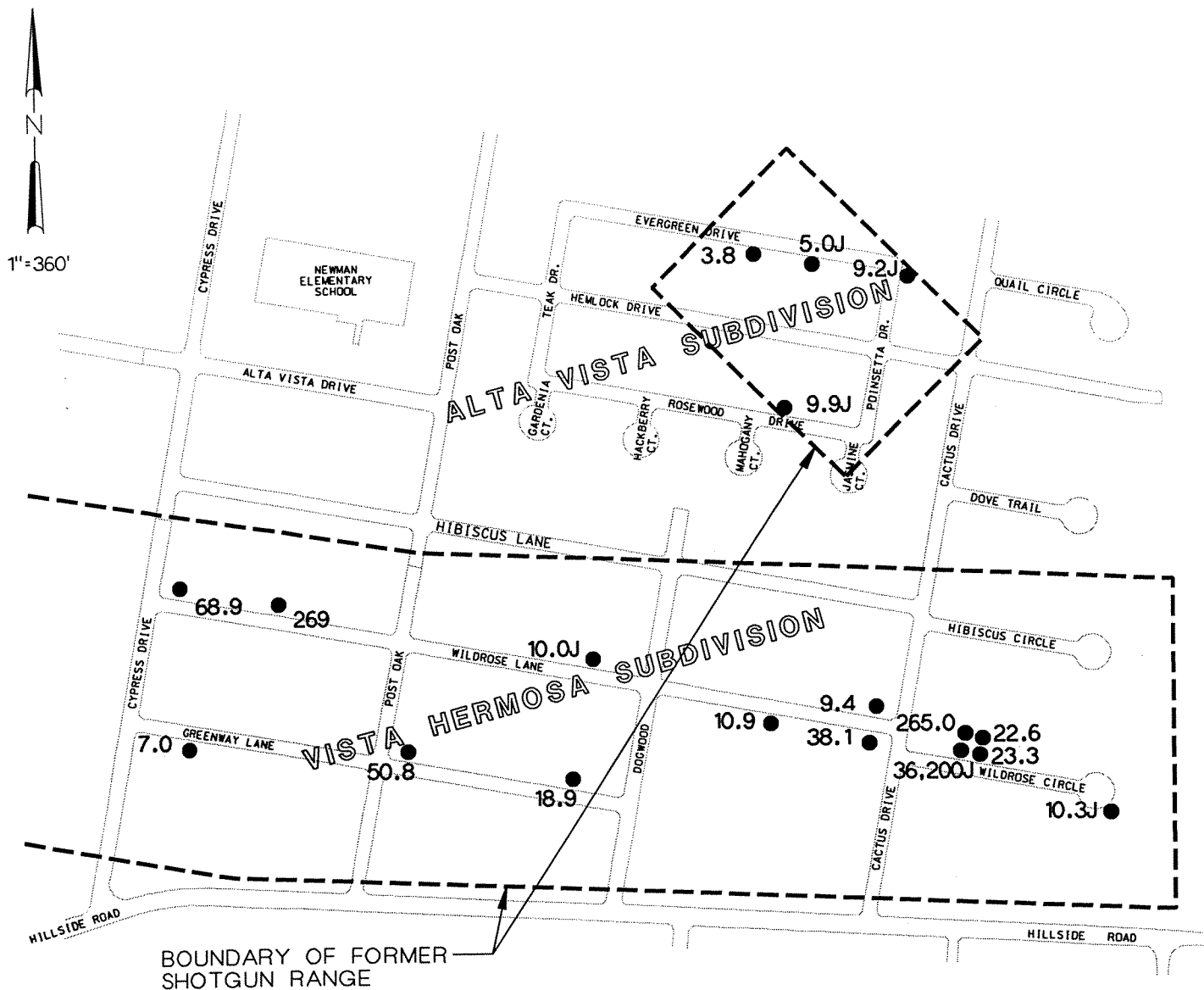
The distribution of total lead concentrations reported for SGR site soil samples at 0-0.5 feet depth is illustrated in Figure 4-1. The distribution of total lead concentrations reported for SGR site soil samples at the 2 feet depth is illustrated in Figure 4-2. For those samples where re-analysis for total lead was performed, only the initial total lead concentrations are shown.

The total lead concentrations reported for all of the SGR site soil samples exceed the TNRCC RRS 2 standard of 1.5 mg/kg for groundwater protection in residential soils. Only sample SGRBHSO013000N1 exceeds the TNRCC RRS 2 standard of 500 mg/kg for soil/air ingestion in residential soils. It is possible that the aliquot from sample SGRBHSO013000N1 that was analyzed by the laboratory contained a fragment of bullet or lead shot. Such an inclusion could account for the high concentration reported by the laboratory. It is noted that none of the three confirmatory soil samples collected from the same property as sample SGRBHSO013000N1 exceed the SAI-Res standard.

As mentioned in Section 3.1, the owners of the property where sample SGRBHSO013000N1 was collected stated that several truck-loads of topsoil had been brought onto their property over the years to fill low areas and replace eroded soil. They also stated that it was typical for other homeowners in the neighborhood to do the same. Therefore, it is uncertain whether the soil samples collected at the SGR site represent native soils that were present at the time of DoD disposal of Laredo AFB.

#### **4.3.2 SPLP Lead**

The SPLP analysis of selected SGR site samples was performed to assess whether the lead present in the soils is likely to leach into groundwater. Of the eight samples analyzed for SPLP lead (excluding the QC duplicate), the SPLP extracts from five of the samples were reported to exceed the TNRCC RRS 2 regulatory standard of 0.015 mg/L for lead in



# LEGEND

- 10.0● TOTAL LEAD CONCENTRATION (mg/kg)
- J ESTIMATED

FIGURE 4-1  
TOTAL LEAD CONCENTRATIONS IN SOILS  
0.5 FEET DEEP  
Shotgun Range Site  
Former Laredo Air Force Base, Texas

4964

**CH2MHILL**

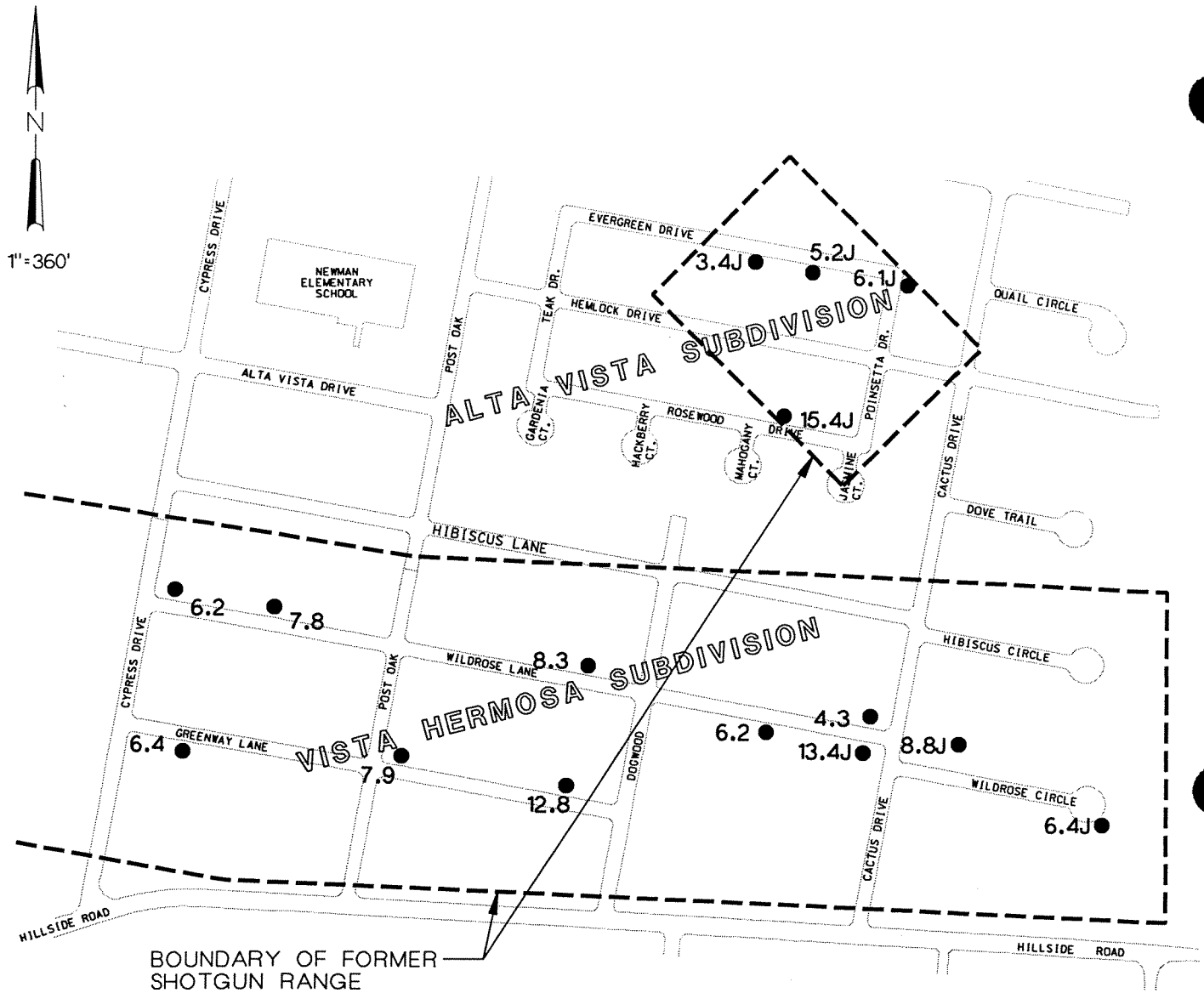


FIGURE 4-2  
TOTAL LEAD CONCENTRATIONS IN SOILS  
2 FEET DEEP  
Shotgoun Range Site  
Former Laredo Air Force Base, Texas

4065

CH2MHILL

groundwater for residential areas. This indicates that the lead present in SGR site soils may have the potential to leach into groundwater. However, it is noted that the highest concentration of total lead from the deeper soil samples (an estimated 15.4 mg/kg for sample SGRBHSO015002N1) is lower than the total lead concentrations reported for each of the three shallow soil samples for which the result of the SPLP analysis did not exceed the TNRCC RRS2 GW-Res regulatory standard. This indicates that the extracts from an SPLP analysis of the deeper samples would not be likely to exceed or significantly exceed the GW-Res standard. It also indicates that significant leaching of the lead from the shallower soils is not occurring. Therefore, it is unlikely that the groundwater at the SGR site has been affected by past SGR site activities.

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**Section 5**  
**Contaminant Fate and Transport**

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## **5. Contaminant Fate and Transport**

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As identified in Section 4, the potential contaminant of concern for the SGR site at the former LAFB is lead. The detected concentrations of total lead for all of the samples exceeded the TNRCC RRS2 GWP-Res standard for lead. However, the environmental fate of a contaminant will depend on a variety of factors, namely the physical and chemical behavior of the contaminants, the geological and hydrogeological conditions at each of the sites, and the potential routes of migration. Each of these factors is discussed in the following sections.

### **5.1 Contaminant Properties**

Lead is a bluish-white, silvery or gray metal that is highly lustrous when freshly cut, but tarnishes when exposed to air. It is very soft and malleable, has a high density and low melting point and can be cast, rolled, and extruded. Lead is non-volatile. Although essentially insoluble in elemental form, salt compounds of lead can be very soluble in water. Lead is relatively immobile in soils, readily adsorbing to soil particles, particularly soils with high clay content or alkaline pH.

### **5.2 Geological and Hydrogeological Conditions of the Site**

As described in Section 4.1 and Section 2.4.2, the soils at the SGR site consist of sandy silt and sandy clay loam. The moisture content of the soil is low, and the pH of the soil is somewhat alkaline. Gypsum and (caliche) are present within the soils. Groundwater was not encountered during the present investigation, but is assumed to be present at a depth of 8 to 10 feet bgs.

### **5.3 Potential Routes of Migration**

Lead was detected in site soils at the SGR site. Because lead is non-volatile, the two primary routes of migration of lead at the site are: 1) physical transport, and 2) dissolution and migration with groundwater.



Physical transport can occur when soil particles to which lead is adsorbed are blown by wind or washed by rain or surface water. The limited amount of precipitation that occurs in the Laredo area makes physical transport a very likely route of migration. The dry soils can easily be blown by wind, and when rainfall does occur, it is frequently in heavy downpours which can easily wash away soil. As described in Section 3.1, erosion of the surficial soil takes place to an extent that homeowners within the SGR site area occasionally obtain fill soil for their property to replace eroded soils. It is also noted, however, that very little of the soil at the SGR site is exposed. Most of the site area is covered with pavement, buildings, or lawns/landscaping. Such cover reduces the likelihood of wind and water erosion significantly.

Dissolution and migration with groundwater occurs when precipitation (or lawn irrigation) dissolves the lead, causing it to leach downward through the soils into the groundwater. The contaminated groundwater then migrates across the site. The potential for the lead to leach into groundwater at the SGR site is limited by a number of factors. The soils contain clays to which lead can readily adsorb. The soils are also calcareous (they contain caliche) and have an alkaline pH. Lead leached at the surface will not remain in solution in this alkaline environment, and will tend to precipitate as hydroxides or carbonate mineral forms, thus limiting mobility of the lead. The limited amount of rainfall that occurs in the Laredo area will also reduce the likelihood of leaching of lead into the subsurface. The relative difference in total lead concentrations between the 0-0.5 feet depth samples and the 2.0 feet depth samples indicate that significant leaching of lead is not occurring. Therefore, dissolution and migration of the lead with groundwater is not a likely route of migration at the SGR site.

## 5.4 Potential Receptors

Because groundwater is not utilized as a water supply in the vicinity of the SGR site and because contamination of the groundwater by the lead in site soils does not appear to be likely, exposure to contaminated groundwater is not likely. Therefore, the potential receptors of the lead at the SGR site are those that have the potential to come into contact with site soils. This includes:

- Residents of the neighborhood constructed on the SGR site
- Construction personnel
- City and private utility personnel

Exposure would be through direct dermal contact or through ingestion/inhalation of lead adsorbed to airborne particles. Those involved in activities that disturb the site soils (construction, excavation, etc.) would be most at risk for exposure.

It is noted that only one of the soil samples collected at the SGR site exceeded the TNRCC RRS2 SAI-Res standard for lead. However, that detected concentration may be an outlier caused by inclusion of a piece of lead shot or bullet fragment in the aliquot of soil analyzed by the laboratory. None of the confirmation samples collected at the same property exceeded the SAI-Res standard.

## Section 6

### Conclusions and Recommendations

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## 6. Conclusions and Recommendations

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### 6.1 Conclusions

The SGR site was utilized as a gunnery and firearms training area when the LAFB was in operation. As such, the expected contaminant of concern for the site is lead. The results of the investigation indicate that:

- Lead is present in the SGR site soils at concentrations exceeding the TNRCC RRS2 GWP-Res standard (1.5 mg/kg). However, there is no site-specific background concentration for lead. The detected lead concentrations are generally low, with only nine of the soil samples (and one QC sample) containing over 20 mg/kg of total lead. Only one of the soil samples, SGRBHSO013000N1, exceeds the TNRCC RRS2 SAI-Res standard of 500 mg/kg.
- The high concentration exhibited by sample SGRBHSO013000N1 (36,200 mg/kg) appears to be an outlier caused by the inclusion of a piece of lead shot or fragment of bullet within the aliquot of soil analyzed by the laboratory. Therefore, the analytical result may not represent the actual lead content of the soil. The deeper sample collected from the same boring contained only an estimated 8.8 mg/kg of total lead. The three confirmation samples collected at the same property contained lead at 265 mg/kg or less.
- The soil samples exhibiting the highest concentrations of total lead were collected from the vicinity of the original firing line north of present day Hillside Road. Further, the detected lead concentrations for samples collected from a depth of 2.0 feet are lower than the concentrations reported for the samples collected from 0-0.5 feet depth in the same borings. Only borings SGRSB012 and SGRSB015 are exceptions, with the deeper sample only slightly higher than the shallower sample.
- The detected lead concentrations in the SPLP extracts for five of the eight samples analyzed for lead by SPLP (excluding the QC duplicate) were found to exceed the TNRCC RRS2 GW-Res standard of 0.015 mg/L (all SPLP samples were shallow

samples). However, since the total lead concentrations are lower for the deeper soil samples than for the shallow soil samples, and the three samples for which the SPLP extract did not exceed the GW-Res standard had total lead concentrations above the highest total lead concentration for the deeper soil samples, it appears that significant leaching of the lead into the subsurface is not taking place.

- The potential for the lead detected in site soils to migrate into groundwater is limited by a number of factors: the clay content of the soil, the presence of carbonates (caliche) in the soil, the alkaline pH of the soil, and the limited rainfall in the Laredo area. Leaching of the lead into groundwater is therefore not likely.
- The most likely route of contaminant migration and exposure appears to be through direct contact (dermal contact and inhalation/ingestion) with site soils. As stated above, only one soil sample, an apparent outlier, was reported to contain lead at a concentration exceeding the SAI-Res standard.
- Erosion of site soils by wind and surface water has resulted in many homeowners at the SGR site purchasing topsoil to fill in low areas and to replace eroded soil. Therefore, it is uncertain whether the soil samples collected at the SGR site represent native soils that were present at the time of DoD disposal of Laredo AFB.

## 6.2 Recommendations

Based upon the above conclusions, CH2M HILL recommends that no further action is necessary at the SGR site.

**Section 7**  
**References**

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## 7. References

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The following references were utilized in the preparation of this SI Report.

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**Appendix A**  
**Soil Boring Logs**

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**CH2MHILL**

PROJECT NUMBER <b>147436.T9.FW</b>	BORING NUMBER <b>SGRSB001</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>		

PROJECT : Former Laredo AFB SI	LOCATION : SGR	ELEVATION (TBM or MSL) : 466.0
DRILLING CONTRACTOR : NA	NAME OF DRILLER : Dougherty	
DRILLING METHOD/EQUIPMENT : Hand Auger	SIZE/TYPE OF BIT : 4"	
DIRECTION OF HOLE : <b>vertical</b> inclined _____ deg from vertical		
OVERBURDEN THICKNESS : > 2 ft	DEPTH DRILLED INTO ROCK : 0	TOTAL DEPTH OF BORING : 2 ft
WATER LEVELS : NA	START : 0835 5/21/99	END : 0845
LOGGER : Dougherty		

DEPTH BELOW SURFACE (FT)			STANDARD	SOIL DESCRIPTION	COMMENTS
Time	SAMPLE INTERVAL (FT)		PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm):      Headspace Analysis
	RECOVERY (IN)				
	#/TYPE				
1			ML	Sandy (fine) silt, brown, dry, moderately stiff, moist at 0.7 ft. Small (1/4-inch) pieces of black material visible in soil. Material flaked when cut with knife.	
2				TD = 2 ft	Boring backfilled with topsoil
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					



**CH2MHILL**

PROJECT NUMBER <b>147436.T9.FW</b>	BORING NUMBER <b>SGRSB002</b>
SHEET 1 OF 1	
<h2 style="margin: 0;">SOIL BORING LOG</h2>	

PROJECT : Former Laredo AFB SI	LOCATION SGR	ELEVATION (TBM or MSL) : 457.6
DRILLING CONTRACTOR : NA		NAME OF DRILLER : Dougherty
DRILLING METHOD/EQUIPMENT: Hand Auger		SIZE/TYPE OF BIT : 4"
DIRECTION OF HOLE : <b>vertical</b> inclined _____ deg from vertical		
OVERBURDEN THICKNESS : > 2 ft	DEPTH DRILLED INTO ROCK : 0	TOTAL DEPTH OF BORING : 2 ft
WATER LEVELS : NA	START : 0900 5/21/99	END : 0920
	LOGGER : Dougherty	

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)	RECOVERY (IN)	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
	Time	#/TYPE	6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
					OVM (ppm):      Headspace Analysis
1				Sandy (fine) silt, brown, dry, moderately stiff, pieces of black material noted	
2				1.0 No more black material 1.2 Begin seeing gypsum in soil	
3				TD = 2 ft	Boring backfilled with topsoil
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

**CH2MHILL**PROJECT NUMBER  
147436.T9.FWBORING NUMBER  
SGRSB003

SHEET 1 OF 1

**SOIL BORING LOG**

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 449.2  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT : Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 0930 5/21/99 END : 0945 LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)				STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS	
SAMPLE INTERVAL (FT)			DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm):      Headspace Analysis				
Time	RECOVERY (IN)	#/TYPE					
1			ML		Sandy (fine) silt, brown, dry, moderately stiff, some pieces of black material	Boring backfilled with topsoil	
2					1.2 As above, yellowish brown, moist, some gypsum		
3					TD = 2 ft		
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

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CH2MHILL

PROJECT NUMBER  
147436.T9.FW

BORING NUMBER  
SGRSB004

SHEET 1 OF 1

## SOIL BORING LOG

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 449.2  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT : Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 0955 5/21/99 END : 1005 LOGGER : Dougherty

WATER LEVELS: NA		START: 0000		END: 0000		COMMENTS	
DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)		STANDARD	SOIL DESCRIPTION		COMMENTS	
	Time	RECOVERY (IN)	PENETRATION	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.			
			TEST RESULTS				
			6"-6"-6"-6" (N)				
		#/TYPE				DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
						OVM (ppm):	Headspace Analysis
1			ML		Sandy (fine) silt, dark yellowish brown, dry, moderately stiff		
2					1.0 As above, some gypsum, slightly moist		
3					TD = 2 ft		Boring backfilled with topsoil
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							

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**CH2MHILL**PROJECT NUMBER  
147436.T9.FWBORING NUMBER  
SGRSB005

SHEET 1 OF 1

**SOIL BORING LOG**

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 452.8  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT : Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 1020 5/21/99 END : 1035 LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)		SAMPLE INTERVAL (FT)		STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION  SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS  DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm):      Headspace Analysis
Time	RECOVERY (IN)					
	#/TYPE					
1			ML		Sandy (fine) silt, yellowish brown, dry, moderately stiff, some black material noted  0.7 As above, slightly moist, no black material  1.2 As above, gypsum present in soil	Boring backfilled with topsoil
2					TD = 2 ft	
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

4581

**CH2MHILL**PROJECT NUMBER  
147436.T9.FWBORING NUMBER  
SGRSB006

SHEET 1 OF 1

**SOIL BORING LOG**

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 466.0  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT: Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 1125 5/21/99 END : 1140 LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)				STANDARD	SOIL DESCRIPTION	COMMENTS
Time	SAMPLE INTERVAL (FT)		RECOVERY (IN)	PENETRATION	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
		#/TYPE				
				6"-6"-6"-6" (N)		OVM (ppm):      Headspace Analysis
1			ML		Sandy (fine) silt, dark yellowish brown, moderately soft, dry	Triplicate samples collected for QA/QC analysis
2					1.5 As above, slightly moist, gypsum present	Triplicate samples collected for QA/QC analysis
3					TD = 2 ft	Boring backfilled with topsoil
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

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**CH2MHILL**PROJECT NUMBER  
**147436.T9.FW**BORING NUMBER  
**SGRSB007**

SHEET 1 OF 1

**SOIL BORING LOG**

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 476.0  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT: Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 1150 5/21/99 END : 1200 LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)		STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS
	Time	RECOVERY (IN)			
		#/TYPE			
1			ML	Sandy (fine) silt, dry, moderately stiff	
2			GM	1.5 As above, slightly moist, gypsum present 1.9 ft Gravel, silty, dry, light brown, caliche nodules	
3				TD = 1.9 ft - auger refusal	Boring backfilled with topsoil
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

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**CH2MHILL**

PROJECT NUMBER <b>147436.T9.FW</b>	BORING NUMBER <b>SGRSB008</b>
SHEET 1 OF 1	
<h2 style="margin: 0;">SOIL BORING LOG</h2>	

PROJECT : Former Laredo AFB SI	LOCATION : SGR	ELEVATION (TBM or MSL) : 481.9
DRILLING CONTRACTOR : NA		NAME OF DRILLER : Dougherty
DRILLING METHOD/EQUIPMENT: Hand Auger		SIZE/TYPE OF BIT : 4"
DIRECTION OF HOLE : <b>vertical</b> inclined _____ deg from vertical		
OVERBURDEN THICKNESS : > 2 ft	DEPTH DRILLED INTO ROCK : 0	TOTAL DEPTH OF BORING : 2 ft
WATER LEVELS : NA	START : 1355 5/21/99	END : _____
		LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)			STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS
	Time	RECOVERY (IN)	#/TYPE			
1			ML		Sandy (fine) silt, dark yellowish brown, 10 YR 4/6, some gravel, dry	
			GM			
2					1.0 Silty Gravel, yellowish brown, 10 YR 5/6	
					TD = 2.0 ft	Boring backfilled with topsoil
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						





CH2MHILL

PROJECT NUMBER  
147436.T9.FW

BORING NUMBER  
SGRSB009

SHEET 1 OF 1

## SOIL BORING LOG

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 401.7  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT: Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 1430 5/21/99 END : 1505 LOGGER : Dougherty

WATER LEVELS : NA			START : 1430	3/27/99	END : 1500	LOCATION : 200gms
DEPTH BELOW SURFACE (FT)		SAMPLE INTERVAL (FT)		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
Time	RECOVERY (IN)	#/TYPE	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
			6"-6"-6"-6" (N)			OVM (ppm):      Headspace Analysis
1			ML		Sandy (fine) silt, dark yellowish brown 10 YR 4/6, dry, some gravel @ about 0.5 ft	Boring backfilled with topsoil
2			ML-GM		1.0 Sandy silt, brownish yellow, 10 YR 6/6, some gravel, dry	
3					TD = 2.0 ft	
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

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**CH2MHILL**

PROJECT NUMBER <b>147436.T9.FW</b>	BORING NUMBER <b>SGRSB010</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>		

PROJECT : Former Laredo AFB SI	LOCATION : SGR	ELEVATION (TBM or MSL) : 467.4
DRILLING CONTRACTOR : NA	NAME OF DRILLER : Dougherty	
DRILLING METHOD/EQUIPMENT: Hand Auger	SIZE/TYPE OF BIT : 4"	
DIRECTION OF HOLE : <b>vertical</b> inclined _____ deg from vertical		
OVERBURDEN THICKNESS : > 2 ft	DEPTH DRILLED INTO ROCK : 0	TOTAL DEPTH OF BORING : 2 ft
WATER LEVELS : NA	START : 1510 5/21/99	END : 1525
	LOGGER : Dougherty	

DEPTH BELOW SURFACE (FT)		SAMPLE INTERVAL (FT)		STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION  SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS  DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm):      Headspace Analysis
Time	RECOVERY (IN)	#/TYPE				
1			SM-ML		Silty fine sand, light yellowish brown, 2.5 Y 6/4, dry	Triplicate samples collected for QA/QC analysis
2					1.5 As above, with some gypsum	
3					TD = 2.0 ft	Boring backfilled with topsoil
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

4086



CH2MHILL

PROJECT NUMBER 147436.T9.FW	BORING NUMBER SGRSB011	SHEET 1 OF 1
SOIL BORING LOG		

PROJECT : Former Laredo AFB SI	LOCATION : SGR	ELEVATION (TBM or MSL) : 472.0
DRILLING CONTRACTOR : NA	NAME OF DRILLER : Dougherty	
DRILLING METHOD/EQUIPMENT : Hand Auger	SIZE/TYPE OF BIT : 4"	
DIRECTION OF HOLE : <b>vertical</b> inclined _____ deg from vertical		
OVERBURDEN THICKNESS : > 2 ft	DEPTH DRILLED INTO ROCK : 0	TOTAL DEPTH OF BORING : 2 ft
WATER LEVELS : NA	START : 1535 5/21/99	END : 1550
	LOGGER : Dougherty	

DEPTH BELOW SURFACE (FT)				STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	COMMENTS
SAMPLE INTERVAL (FT)					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm):      Headspace Analysis
Time	RECOVERY (IN)	#/TYPE				
1			ML-SM		Sandy (fine) silt, dark yellowish brown, 10 YR 4/4, drv 0.4 As above, yellowish brown 10 YR 5.6, moist	
2			SM-ML		1.2 Weathered Sandstone & Sandy silt, moist, light olive brown. 2.5 Y 5/6. some concretion	
3					TD = 2.0 ft	Boring backfilled with topsoil
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

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**CH2MHILL**

PROJECT NUMBER  
**147436.T9.FW**

BORING NUMBER  
**SGRSB012**

SHEET 1 OF 1

## SOIL BORING LOG

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 486.1  
 DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
 DRILLING METHOD/EQUIPMENT : Hand Auger SIZE/TYPE OF BIT : 4"  
 DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
 OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
 WATER LEVELS : NA START : 1600 5/21/99 END : 1615 LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL (FT)			STANDARD	SOIL DESCRIPTION	COMMENTS
	Time	RECOVERY (IN)	PENETRATION			
			TEST			
			RESULTS			
6"-6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.				
			#/TYPE		OVM (ppm):	Headspace Analysis
1			ML		Sandy (fine) silt, dark yellowish brown, 10 YR 4/6, dry	
					0.6 As above, yellowish brown, 10 YR 5/8, gypsum streaks	
					Some gypsum crystals below 1.5 ft	
2						
					TD = 2.0 ft	Boring backfilled with topsoil
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

4088



CH2MHILL

PROJECT NUMBER  
147436.T9.FW

BORING NUMBER  
SGRSB013

SHEET 1 OF 1

## SOIL BORING LOG

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 487.2  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT : Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 0815 5/22/99 END : 0830 LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)			STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm):      Headspace Analysis
SAMPLE INTERVAL (FT)		RECOVERY (IN)			
Time	#/TYPE				
1			ML	Sandy (fine) silt, dark yellowish brown, 10 YR 4/4, dry, some small gravel, some black material as in first few borings 0.6 As above, moist, with gypsum, light yellowish brown, 10 YR 5/6  1.8 Sandy silt, light yellowish brown, 10 YR 6/4, dry	Boring backfilled with topsoil
2				TD = 2.0 ft	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

4589

**CH2MHILL**PROJECT NUMBER  
147436.T9.FWBORING NUMBER  
SGRSB014

SHEET 1 OF 1

**SOIL BORING LOG**

PROJECT : Former Laredo AFB SI LOCATION : SGR ELEVATION (TBM or MSL) : 498.2  
DRILLING CONTRACTOR : NA NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT : Hand Auger SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft DEPTH DRILLED INTO ROCK : 0 TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA START : 0840 5/22/99 END : 0855 LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)		SAMPLE INTERVAL (FT)		STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm):      Headspace Analysis
Time	RECOVERY (IN)	#/TYPE				
1			ML		Sandy (fine) silt, dark yellowish brown, 10 YR 3/4, mottled with 10 YR 6/8 & 2.5 Y 6/2, dry	
2					1.5 Sandy (fine) silt, grey, 2.5 Y 6/2, dry, gypsum crystals	
3					2.0 Sandy silt, yellowish brown, 10 YR 5/6 and grey 2.5 Y 6/2, moist, gypsum crystals	Boring backfilled with topsoil
4					TD = 2.0 ft	
5						
6						
7						
8						
9						
10						
11						
12						
13						

4090

**CH2MHILL**

PROJECT NUMBER <b>147436.T9.FW</b>	BORING NUMBER <b>SGRSB015</b>	SHEET 1 OF 1
<b>SOIL BORING LOG</b>		

PROJECT : Former Laredo AFB SI      LOCATION : SGR      ELEVATION (TBM or MSL) : 475.7  
DRILLING CONTRACTOR : NA      NAME OF DRILLER : Dougherty  
DRILLING METHOD/EQUIPMENT : Hand Auger      SIZE/TYPE OF BIT : 4"  
DIRECTION OF HOLE : **vertical** inclined \_\_\_\_\_ deg from vertical  
OVERBURDEN THICKNESS : > 2 ft      DEPTH DRILLED INTO ROCK : 0      TOTAL DEPTH OF BORING : 2 ft  
WATER LEVELS : NA      START : 0920 5/22/99      END : 0935      LOGGER : Dougherty

DEPTH BELOW SURFACE (FT)				STANDARD	SOIL DESCRIPTION	COMMENTS
SAMPLE INTERVAL (FT)				PENETRATION	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
Time	RECOVERY (IN)			TEST RESULTS		
	#/TYPE			6"-6"-6"-6" (N)		
1			ML- SM		Sandy (fine) silt, dark yellowish brown, 10 YR 4/4, slightly moist, some gravel, some gypsum below 0.5 ft	
2					1.3 As above, dark yellowish brown, 10 YR 4/6, moist, at 18 inches some black material similar to that seen in first few borings is observed	
3					TD = 2.0 ft	Boring backfilled with topsoil
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

'' 4991

**Appendix B**  
**IDW Disposal Documentation**

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CH2MHILL

PROJECT NUMBER

147436 T9.FW

PROJECT NAME

Former Laredo  
AFB SI

SHEET 1 OF 1

## IDW DRUM INVENTORY LIST

DATES OF PROJECT :

DRUM NUMBER	DATE FILLING BEGUN	DATE FILLED	CONTENTS	NAME OF PERSON FILLING DRUM
1	5/18/99	5/18/99	Soil Cuttings MW001	Dougherty
2	5/18/99	5/20/99	Soil Cuttings MW001, plastic sheet	Dougherty
3	5/18/99	5/18/99	Soil cuttings IWTOMW003	Dougherty
4	5/19/99	5/19/99	Soil cuttings IWTPS8001, S8002, S8003, S8004	Dougherty
5	5/18/99	5/18/99	Soil Cuttings IWTPMW002	Dougherty
6	5/18/99	5/19/99	IWTP. Decom water, all borings	Dougherty
7	5/19/99	5/20/99	Decom water, all IWTP borings	Dougherty
8	5/20/99	5/20/99	Development Water IWTPMW003	Dougherty
9	5/20/99	5/20/99	Dev. Water, IWTPMW001	Dougherty
10	5/20/99	5/20/99	Dev. Water, IWTPMW002	Dougherty
11	5/24/99	5/24/99	Soil from SGR borings	Dougherty
12	5/24/99	5/24/99	Purge water, All IWTP wells	Dougherty
13				
14				
15				
16				
17				
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21				
22				
23				
24				
25				
26				

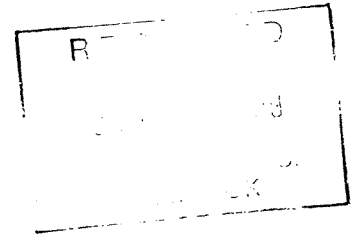
04993

# *EET Environmental Services LLC*

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June 23, 1999

Mr. Dave Epperly  
CH2M Hill  
502 S. Main, 4<sup>th</sup> Floor  
Tulsa, OK 74103



**RE: Manifests for Waste at the Former Laredo AFB**

Dear Dave:

Per Chuck Dougherty's instructions, I am sending you the manifests for the waste currently staged at Laredo International Airport. Based upon the analytical data, both the purge/decon water and the soil cuttings are classified as Non-hazardous Class II wastes. The soil cuttings will be disposed of at the City of Laredo Landfill. The purge/decon water will be disposed of at the BFI facility here in Austin.

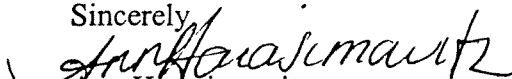
I spoke to Randall Kepenbrock, Manager of the City of Laredo landfill, and he stated that they could accept the Class II soil waste. He requested that a non-hazardous waste manifest be utilized and that the corresponding analytical data be attached to this manifest. The City landfill does not provide their own non-hazardous manifests, so I was forced to use a non-hazardous manifest from another landfill facility. Mr. Kepenbrock stated that this was acceptable. This is the cause of the sorry appearance of the manifest for the soil cuttings. I had to whiteout existing facility information over which I wrote the information for the Laredo landfill. Analytical data that will be submitted to the Laredo landfill is attached for your review.

If you have any questions regarding the manifests, please do not hesitate to give me a call.

Please sign the manifest as the generator's representative and then federal express back to me for Friday delivery. I am planning to mobilize to the site on Monday, June 28<sup>th</sup>. I have included a completed Fed Ex return shipment label for your convenience.

Again, please do not hesitate to give me a call if you have any questions.

Sincerely,

  
Ann Harasimowitz  
Regulatory Chemist



# TEXAS

NON-HAZARDOUS SPECIAL WASTE MANIFEST

NO. 356584

## GENERATOR

GENERATOR NAME U.S. Army Corp. of Engineers GENERATING LOCATION Laredo International Airport  
ADDRESS 1645 South 101 East Avenue ADDRESS Laredo, TX 78401  
Tulsa, OK 74128-4629

PHONE NO. 918 6691519

STATE GENERATOR ID NUMBER CESQG

T.N.R.C.C.	DESCRIPTION OF WASTE	QUANTITY	UNITS
<input type="text"/>	<u>Purge/Decon Water</u>	<input type="text"/>	<u>D</u>

BFI WASTE CODE TX 755 000623 NP3028 4

T.N.R.C.C.	DESCRIPTION OF WASTE	QUANTITY	UNITS
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

BFI WASTE CODE

T.N.R.C.C.	DESCRIPTION OF WASTE	QUANTITY	UNITS
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

BFI WASTE CODE

D-DRUM  
C-CARTON  
B-BAG  
T-TRUCK  
P-POUNDS  
Y-YARDS  
O-OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

J. Daniel ARTHUR  
GENERATOR AUTHORIZED AGENT NAME

SIGNATURE

SHIPMENT DATE

## TRANSPORTER

TRUCK NO. #002 PHONE NO. 512-291-1100

TRANSPORTER NAME EET Environmental Services DRIVER NAME (PRINT) James Tezula

ADDRESS 11405 Conroy Lane VEHICLE LICENSE NO./STATE 1HN-T66 / Texas

Manchaca, TX 78652 STATE TRANSPORTER ID NO. 85665

HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE GENERATOR SITE LISTED ABOVE. I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS DELIVERED WITHOUT INCIDENT TO THE DESTINATION LISTED BELOW.

DRIVER SIGNATURE	SHIPMENT DATE	DRIVER SIGNATURE	DELIVERY DATE
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## DESTINATION

SITE NAME BROWNING-FERRIS IND. / SUNSET FARMS LANDFILL PHONE NO. 512-2724327

ADDRESS 9912 GILES RD. AUSTIN, TX 78754 MSW#1447

I CERTIFY THAT THE ABOVE NAMED MATERIAL HAS BEEN ACCEPTED AND TO THE BEST OF MY KNOWLEDGE THE FOREGOING IS TRUE AND ACCURATE.

NAME OF AUTHORIZED AGENT

SIGNATURE

04995

AUG 27 '99 09:29AM CH2 HILL

P.374

Waste  
Systems

# TEXAS

## NON-HAZARDOUS SPECIAL WASTE MANIFEST

## GENERATOR

GENERATOR NAME: \_\_\_\_\_ GENERATOR PHONE NO.: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ ADDRESS: \_\_\_\_\_

PHONE NO. 409-441-5171

STATE GENERATOR ID NUMBER 023015

T.N.R.C.C.	DESCRIPTION OF WASTE	QUANTITY	UNIT	HAZARDOUS
TX 755 000 623 NP 3 0 23	Large Debris Waste	12	YD	

BFI WASTE CODE TX 755 000 623 NP 3 0 23

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

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T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

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BFI WASTE CODE

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BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

BFI WASTE CODE

T.N.R.C.C. DESCRIPTION OF WASTE QUANTITY UNIT

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue as previously mentioned hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is not longer a hazardous waste as defined by 40 CFR Part 261.

GENERATOR AUTHORIZED AGENT NAME: Daniel Arthur SIGNATURE: [Signature] DATE: 8/27/99

## TRANSPORTER

TRUCK NO. #002 PHONE NO. 512-291-1100

TRANSPORTER NAME: EET Environmental Services DRIVER NAME (PRINT): James Zezula

ADDRESS: 11405 Conroy Lane VEHICLE LICENSE NO./STATE: 1HN-T66 / Texas

Marchaca, TX 78652 STATE TRANSPORTER ID NO.: 85065

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE GENERATOR SITE LISTED ABOVE. I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS DELIVERED WITHOUT INCIDENT TO THE DESTINATION LISTED BELOW.

James Zezula 062999 James Zezula 08/27/99

DRIVER SIGNATURE: [Signature] DATE: 8/27/99 DRIVER SIGNATURE: [Signature] DATE: 8/27/99

## DESTINATION

SITE NAME: BROWNING FERROS NO. 1 SUGAR FARMS LAND CO. PHONE NO.: 512-291-1100

ADDRESS: 2612 GILES RD. DATE: 8/27/99

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL HAS BEEN ACCEPTED AND IS THE BEST OF MY KNOWLEDGE THE FOREGOING IS TRUE AND ACCURATE.

James Zezula 062999 James Zezula 08/27/99

NAME OF AUTHORIZED AGENT: [Signature] SIGNATURE: [Signature] DATE: 8/27/99

04996

City of Laredo Landfill  
HWY 359  
Laredo, TX



39321

**NON-HAZARDOUS MANIFEST**

**GENERATOR**

Generator U.S. Army Corp of Engineers I.D. # CESQG  
Address 1645 South 101 East Avenue Gen. Location Laredo Int. Airport  
Tulsa, OK 74128-4629 Address Laredo, TX 78401  
Phone 918-669-7519 Phone \_\_\_\_\_

Description of Waste Materials	Profile Number	Total Quantity	Unit of Measure	Container Type
<u>Non hazardous soil cuttings</u>	<u>see attached analytical</u>			<u>DM</u>

I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR, Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.

J. Daniel Arthur  
Generator Authorized Agent Name (Print)

[Signature]  
Signature

Delivery Date                     

**TRANSPORTER**

Transporter Name EET Environmental Svcs. Driver Name James Zezula  
Address 11405 Conroy Lane Truck Number 002  
Manhaca TX 78652 Truck Type Ford 1 ton

I hereby acknowledge receipt of the above described materials for transport from the generator site listed above.

I hereby acknowledge that the above described materials were received from the generator site were transported without incident to the destination listed below.

Driver Signature \_\_\_\_\_

Shipment Date \_\_\_\_\_

Driver Signature \_\_\_\_\_

Delivery Date \_\_\_\_\_

**DESTINATION**

Site Name City of Laredo Landfill Phone Number (956) 795-2515  
Address HWY 359, Laredo TX 78401  
Disposal Location: North \_\_\_\_\_ East \_\_\_\_\_ Level \_\_\_\_\_

I hereby acknowledge receipt of the above described materials.

Name of Authorized Agent (Print) \_\_\_\_\_

Signature \_\_\_\_\_

Receipt Date \_\_\_\_\_

White - Original

Canary - Disposer Retain

Pink - Transporter Retain

Goldenrod - Generator Retain

04997

AUG 27, 1999 09:35AM CH2MHILL 1111

HWY 359  
Laredo, TX

P. 4/4

39321

## NON-HAZARDOUS MANIFEST

## GENERATOR

Generator U.S. Army Corp of Engineers ID. # CESQG  
Address 1645 South 101 East Avenue Shipping Location Laredo Int. Airport  
Tulsa, OK 74128-4629 Address Laredo, TX 78401  
Phone 918-669-7519 Phone \_\_\_\_\_

Description of Waste Materials	Profile Number	Total Quantity	Unit of Measure	Container Type
<u>Nonhazardous soil cuttings</u>	<u>see attached manifest</u>	<u>6</u>		<u>DM</u>

I hereby certify that the above-described materials are not hazardous wastes as defined by 40 CFR, Part 261 or any applicable state law, have been fully and accurately described, classified and packaged, and are in proper condition for transportation according to applicable regulations.

J. Daniel  
Generator Authorized Agent Name (Print)

Signature

Delivery Date

## TRANSPORTER

Transporter Name EET Environmental Svcs. Driver Name James Zezula  
Address 11405 Panroll Lane Truck Number 302  
Monrovia, CA 91757 Truck Type Flatbed

I hereby acknowledge receipt of the above described materials for transport from the generator site listed above.

I hereby acknowledge that the above described materials were received from the generator site were transported without incident to the destination listed below.

James Zezula 06-29-99  
Driver Signature Shipment Date

Driver Signature Delivery Date

## DESTINATION

Site Name City of Laredo Landfill Phone Number (956) 795-2515  
Address HWY 359 Laredo TX 78401  
Disposal Location: North AA East 17 Level 1

I hereby acknowledge receipt of the above described materials.

Jose Luis Villanar  
Name of Authorized Agent (Print)J. Zezula 6/29/99  
Signature Receipt Date

White - Original

Canary - Disposer Retain

Pink - Transporter Retain

Goldenrod - Generator Retain



Central TX Region

8101 Cameron Rd #306 – Austin, TX 78754

512/821-0045 FAX 512/821-0237

Report Date: 06/11/1999

Page 1 of 20

EET, Inc  
PO Box 1890  
Manchaca, TX 78652-1890  
Attention: A. Harasimowitz

Project Report: 102380  
Client: EET1

## Results for Project 102380

### 109349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999 By: Client Rec: 05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
Flash Point (Reg. Limit 140.0 F)	>200	Degrees F		EPA Method 1010	05/28/1999 1515	PRE	
Total Petroleum Hydrocarbon	39	mg/L	1	EPA Method 418.1	06/09/1999 1730	GDG	
CLP Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6010B	06/08/1999 1139	WOB	7440-22-4
CLP Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300	WOB	7440-38-2
CLP Barium (Reg. Limit 100.0)	0.242	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
CLP Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
CLP Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
CLP Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
CLP Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
Reactivity Cyanide (RL 250)	ND	mg/kg	4.0	EPA Method 7.3.3	05/28/1999 1500	RSV	
CLP Mercury (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/02/1999 1412	WOB	7439-97-6
CLP alpha-BHC (Lindane) RL	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	58-89-9
CLP Chlordane (Reg. Limit 0.03)	ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0546	KLB	57-74-9
CLP Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-20-8
CLP Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	76-44-8
CLP Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	1024-57-3
CLP Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-43-5
CLP Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0546	KLB	8001-35-2
CLP 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1642	KLB	94-75-7
CLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1642	KLB	93-72-1
CLP 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	107-06-2
CLP 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	75-34-3
CLP Benzene (Reg. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	71-43-2
CLP Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	56-23-5
CLP Chlorobenzene (Limit 100)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	108-90-7
CLP Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	67-66-3
CLP MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0010	KLB	78-93-3
CLP Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	127-18-4
CLP Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	79-01-6
CLP Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0010	KLB	75-01-4
CLP 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	106-46-7
CLP 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	121-14-2
CLP Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	67-72-1
CLP Hexachlorobenzene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	118-74-1
CLP 1,2-Dichlorobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	87-68-3
CLP 1,3-Dichlorobenzene (Limit 2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	98-95-3
CLP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1519	KLB	87-86-5



Corporate Mailing: P.O. Box 9000, Kilgore, TX 75663-9000 – 903/984-0551 – FAX 903/984-5914

Corporate Shipping: 2600 Dudley Rd., Kilgore, TX 75662 – <http://www.ana-lab.com>

Continued





## Central TX Region

8101 Cameron Rd #306 -- Austin, TX 78754

512/821-0045 FAX 512/821-0237

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Project Report: 102380

Client: EET1

### Results for Project 102380

#### 3349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
P Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	110-86-1
P Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	1319-77-3
P 2,4,6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	88-06-2
P 2,4,5-Trichlorophenol (400)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	95-95-4
oratory pH	7.4	SU		EPA Method 9040A	05/28/1999 1630	PRE	
ctivity Sulfide (RL 500)	ND	mg/kg	10	SW-846 7.3.4	05/28/1999 1000	RSV	

#### 1350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
P Petroleum Hydrocarbon	58	mg/kg	10	EPA Method 418.1	06/03/1999 1130	GDG	
P Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300	WOB	7440-38-2
P Barium (Reg. Limit 100.0)	0.264	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
P Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
P Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
P Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
P Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
P Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-22-4
P Mercury (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/01/1999 1431	WOB	7439-97-6
P Gamma-BHC (Lindane) RL	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	58-89-9
P Chlordane (Reg. Limit 0.03)	ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0449	KLB	57-74-9
P Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-20-8
P Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	76-44-8
P Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	1024-57-3
P Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-43-5
P Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0449	KLB	8001-35-2
P 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1716	KLB	94-75-7
P 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1716	KLB	93-72-1
P 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	107-06-2
P 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	75-34-3
P Benzene (Reg. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	71-43-2
P Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	56-23-5
P Chlorobenzene (Limit 100)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	108-90-7
P Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	67-66-3
P MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0105	KLB	78-93-3
P Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	127-18-4
P Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	79-01-6
P Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0105	KLB	75-01-4
P 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	106-46-7
P 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	121-14-2
P Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	67-72-1

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## Results for Project 102380

### 09350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
CLP Hexachlorobenzene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	118-74-1
CLP Hexachlorobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	87-68-3
CLP Nitrobenzene (Limit 2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	98-95-3
CLP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1641	KLB	87-86-5
CLP Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	110-86-1
CLP Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	1319-77-3
CLP 2,4,6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	88-06-2
CLP 2,4,5-Trichlorophenol (400)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	95-95-4

## Sample Preparation Steps for Project 102380

### 09349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	Method	Analyzed	By
Attie Temperature on Receipt	4	Degrees C		05/26/1999 1318	AAJ
Attie Temperature on Receipt	4	Degrees C		05/26/1999 1318	AAJ
CLP Volatile Extraction	1.5% SOLID		EPA Method 1311	05/28/1999 1540	GPJ
CLP Extraction: Non-Volatile	AQU/SOL EXT		EPA Method 1311	05/27/1999 1705	GPJ
CLP Digestion TCLP 3010	50/10 A/S/S	mL/mL	EPA Method 3010A	06/02/1999 0830	PJD
CLP Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
CLP Liquid-Liquid Extraction	1/100 S	mL/mL	EPA Method 3510	06/03/1999 0700	LMB
Chrocarbon Liquid Extraction	100/380	mL/mL	EPA Method 3510 *MOD	06/03/1999 1450	MAM
CLP Digestion - TCLP 7470	150/10 A/S	mL/mL	EPA Method 7470A	06/01/1999 0900	WBM
CLP Digestion - TCLP 7470	150/10 A/S	mL/mL	EPA Method 7470A	06/02/1999 0900	WBM
CLP TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999 0546	KLB
CLP Trifluoromethylation of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999 0900	LMB
CLP TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999 1642	KLB
CLP TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999 0010	KLB
CLP TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999 1519	KLB
CLP This Report AS Soon As	FAXED		FAX	06/10/1999 16:29	KEK
CLP Activity Distillation	100/10 A/B	mL/g	SW 846 7.3.3	05/26/1999 1700	HAM

### 09350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	Method	Analyzed	By
Attie Temperature on Receipt	4	Degrees C		05/26/1999 1318	AAJ
CLP ZHE Volatile Extraction	100.0% SOLID		EPA Method 1311	05/28/1999 1540	GPJ
CLP Extraction: Non-Volatile	SOL EXT #1		EPA Method 1311	05/27/1999 1705	GPJ
CLP Digestion TCLP 3010	50/10 A/S/S	mL/mL	EPA Method 3010A	06/02/1999 0830	PJD
CLP Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
CLP Liquid-Liquid Extraction	1/100 S	mL/mL	EPA Method 3510	06/03/1999 0700	LMB
CLP Sonication Extract.	100/30	mL/g	EPA Method 3550B	06/02/1999 1130	LMB
CLP Digestion - TCLP 7470	150/10 A/S/S	mL/mL	EPA Method 7470A	06/01/1999 0900	WBM



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Project Report: 102380

Client: EET1

## Sample Preparation Steps for Project 102380

## 1350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999

By: Client

Rec:05/26/1999

Parameter	Result	Unit	Method	Analyzed	By
TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999 0449	KLB
Dilution of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999 0900	LMB
TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999 1716	KLB
TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999 0105	KLB
TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999 1641	KLB
This Report AS Soon As	FAXED		FAX	06/07/1999 16:53	KEK

## Sample Specific Quality Control/Quality Assurance

## 1349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999

By: Client

Rec:05/26/1999

Method	Surrogate/Spike on Sample	409349	06/02/1999	2
Compound	Result	Concentration	%Recovery	
monofluoromethane	42.1	40.0	110	
o-xylene-d8	40.9	40.0	100	
monofluorobenzene-SURR	41.3	40.0	100	

Method	Matrix Spike on Sample	409349	06/02/1999	2
Compound	Recovery (%)	Concentration		
P Benzene (Reg. Limit 0.5)	110	50.0		
P Carbon Tetrachloride (.5)	122	50.0		
P Chlorobenzene (Limit 100)	111	50.0		
P Chloroform (Reg. Limit 6.0)	112	50.0		
P 1,2-Dichloroethane (RL .5)	121	50.0		
P 1,1-Dichloroethene (.7)	106	50.0		
P Tetrachloroethylene (.7)	111	50.0		
P Trichloroethylene (.5)	115	50.0		
P Vinyl Chloride (.4)	96.0	50.0		
P MEK (Reg. Limit 200)	85.8	50.0		

Method	Internal Standard Areas on Sample	409349	06/02/1999	2
Compound	IS Area	CCC IS Area	Status	
monofluorobenzene-ISTD	168800	174400		
-difluorobenzene-ISTD	244800	252800		
chlorobenzene-d5-ISTD	204300	214400		
-dichlorobenzene-d4-ISTD	91360	96680		

Method	Surrogate/Spike on Sample	409349	06/04/1999	1
Compound	Result	Concentration	%Recovery	
2,4,6-Tribromophenol	91.4	100	91	
fluorophenol-SURR	50.4	100	50	
phenol-d6-SURR	34.1	100	34	
chlorobenzene-d5-SURR	35.1	50.0	70	
fluorobiphenyl-SURR	35.7	50.0	71	

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Project Report: 102380

Client: EET1

## Sample Specific Quality Control/Quality Assurance

409349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999

By: Client

Rec:05/26/1999

4-Terphenyl-d14-SURR 57.2 50.0 110

EPA Method 8260B Matrix Spike on Sample 409349 06/04/1999 1

Compound	Recovery (%)	Concentration
CLP Bis(2-chloroethyl) ether	84.5	100
CLP 1,4-Dichlorobenzene	68.4	100
CLP 2,4-Dinitrotoluene (.13)	83.7	100
CLP Hexachlorobenzene (.13)	88.8	100
CLP Hexachlorobutadiene (.5)	71.6	100
CLP Hexachlorethane (Limit 3)	73.2	100
CLP Nitrobenzene (Limit 2)	86.4	100
CLP Pentachlorophenol (100)	63.7	100
CLP 2,4,6-Trichlorophenol (2)	69.7	100
CLP 2,4,5-Trichlorophenol (400)	71.0	100
CLP Total Cresols (Reg Lim 200)	58.3	300
CLP dione (Reg. Limit 5)	68.1	100

EPA Method 8270C Internal Standard Areas on Sample 409349 06/04/1999 1

Compound	IS Area	CCC IS Area	Status
1,4-Dichlorobenzene-d4-ISTD	232000	238300	
1,2,3,4-Tetrahydronaphthalene-d8-ISTD	885700	880200	
Acenaphthene-d10-ISTD	478400	473900	
Benanthrene-d10-ISTD	682300	683700	
Brysene-d12-ISTD	371300	447900	
Perylene-d12-ISTD	277400	331000	

GC Surr.) Surrogate/Spike on Sample 409349 06/02/1999 1

Compound	Result	Concentration	%Recovery
1,4-Dichlorophenylacetic Acid	122	100	120

GC Surr.) Matrix Spike on Sample 409349 06/02/1999 1

Compound	Recovery (%)	Concentration
1,4,5-TP (Silvex)	102	100
1,4 Dichlorophenoxyacetic acid	119	100

C Surrogate/Spike on Sample 409349 06/02/1999 1

Compound	Result	Concentration	%Recovery
1-Butylchloredate (GC Surr)	56.2	100	56
1,2,4-Trichloro-m-Xylene (GC Surr.)	54.8	100	55

C Matrix Spike on Sample 409349 06/02/1999 1

Compound	Recovery (%)	Concentration
1,2,3,4-Tetrahydronaphthalene (Lindane)	67.2	100
1,2,3,4-Tetrahydronaphthalene	89.5	100
1,2,3,4-Tetrahydronaphthalene	61.9	100

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## Sample Specific Quality Control/Quality Assurance

9349 Purge/Decon Water Former Laredo AFB Liquid Aqueous Taken: 05/20/1999 By: Client Rec: 05/26/1999

achlor epoxide	72.9	100
hoxychlor	75.0	100

9350 Soil Cuttings Former Laredo AFB Solid Taken: 05/20/1999 By: Client Rec: 05/26/1999

Method 8260B Surrogate/Spike on Sample 409350 06/02/1999 2

pound	Result	Concentration	%Recovery
romofluoromethane	42.6	40.0	110
uene-d8	41.0	40.0	100
mo fluorobenzene-SURR	42.4	40.0	110

Method 8260B Matrix Spike on Sample 409350 06/02/1999 2

pound	Recovery (%)	Concentration
P Benzene (Reg. Limit 0.5)	112	50.0
P Carbon Tetrachloride (.5)	123	50.0
P Chlorobenzene (Limit 100)	113	50.0
P Chloroform (Reg. Limit 6.0)	116	50.0
P 1,2-Dichloroethane (RL .5)	124	50.0
P 1,1-Dichloroethene (.7)	110	50.0
P Tetrachloroethylene (.7)	109	50.0
P Trichloroethylene (.5)	113	50.0
P Vinyl Chloride (.4)	97.8	50.0
P MEK (Reg. Limit 200)	94.8	50.0

Method 8260B Internal Standard Areas on Sample 409350 06/02/1999 2

pound	IS Area	CCC IS Area	Status
afluorobenzene-ISTD	166500	174400	
-Difluorobenzene-ISTD	239000	252800	
obenzene-d5-ISTD	203600	214400	
-Dichlorobenzene-d4-ISTD	89460	96680	

Method 8270C Surrogate/Spike on Sample 409350 06/04/1999 1

pound	Result	Concentration	%Recovery
6-Tribromophenol	80.8	100	81
uorophenol-SURR	49.7	100	50
ol-d6-SURR	33.4	100	33
obenzene-d5-SURR	33.3	50.0	67
uorobiphenyl-SURR	31.5	50.0	63
rphenyl-d14-SURR	57.9	50.0	120

Method 8260B Matrix Spike on Sample 409350 06/04/1999 1

pound	Recovery (%)	Concentration
Bis(2-chloroethyl) ether	82.5	100
1,4-Dichlorobenzene	60.2	100
2,4-Dinitrotoluene (.13)	81.7	100



### Sample Specific Quality Control/Quality Assurance

#### 409350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec: 05/26/1999

TCLP Hexachlorobenzene (.13)	88.1	100
TCLP Hexachlorobutadiene (.5)	59.1	100
TCLP Hexachlorethane (Limit 3)	64.2	100
TCLP Nitrobenzene (Limit 2)	83.8	100
TCLP Pentachlorophenol (100)	63.4	100
TCLP 2,4,6-Trichlorophenol (2)	67.5	100
TCLP 2,4,5-Trichlorophenol (400)	69.8	100
TCLP Total Cresols (Reg Lim 200)	62.0	300
TCLP Pyridine (Reg. Limit 5)	50.0	100

EPA Method 8270C Internal Standard Areas on Sample 409350 06/04/1999 1

Compound	IS Area	CCC IS Area	Status
1,4-Dichlorobenzene-d4-ISTD	235900	238300	
Naphthalene-d8-ISTD	903500	880200	
Acenaphthene-d10-ISTD	473200	473900	
Phenanthrene-d10-ISTD	666200	683700	
Chrysene-d12-ISTD	352300	447900	
Perylene-d12-ISTD	261200	331000	

(GC Surr.) Surrogate/Spike on Sample 409350 06/02/1999 1

Compound	Result	Concentration	%Recovery
1,4-Dichlorophenylacetic Acid	117	100	120

GC Surr.) Matrix Spike on Sample 409350 06/02/1999 1

Compound	Recovery (%)	Concentration
2,4,5-TP (Silvex)	94.4	100
1,4 Dichlorophenoxyacetic acid	109	100

C Surrogate/Spike on Sample 409350 06/02/1999 1

Compound	Result	Concentration	%Recovery
tributylchloroendate (GC Surr.)	81.2	100	81
etrachloro-m-Xylene (GC Surr.)	81.3	100	81

C Matrix Spike on Sample 409350 06/02/1999 1

Compound	Recovery (%)	Concentration
gamma-BHC (Lindane)	97.5	100
drin	125	100
ptachlor	93.1	100
ptachlor epoxide	100	100
thoxychlor	138	100

### Organic Quality Control/Quality Assurance for Project 102380

05005



## Organic Quality Control/Quality Assurance for Project 102380

Method 8260B Blank 06/02/1999 2

Compound	Result
benzene	ND
monobromobenzene	ND
1,2-Dichloroethylene	ND
ethylene Chloride	ND
toluene	ND
1,1-dichloroethylene	ND

Method 8260B Instrument Tune 06/02/1999 2

Mass	Reference Mass	Min Abundance	Max Abundance	Result	Status
Mass 50	95	15.0	40.0	20.2	PASS
Mass 75	95	30.0	60.0	47.8	PASS
Mass 95	95	100	100	100.0	PASS
Mass 96	95	5.00	9.00	6.3	PASS
Mass 173	174	0	2.00	0.0	PASS
Mass 174	95	50.0	100	70.9	PASS
Mass 175	174	5.00	9.00	8.6	PASS
Mass 176	174	95.0	101	97.9	PASS
Mass 177	176	5.00	9.00	6.6	PASS

Instrument Calibration Check 06/02/1999 2

Compound	Max %Rel. Std.	%Deviation	Status
monobromobenzene	20.0	-9.8	PASS
1,2-Dichloroethylene	20.0	-4.7	PASS
1,2-Dichloropropane	20.0	-9.5	PASS
toluene	20.0	-12.5	PASS
toluene	20.0	-7.5	PASS
ethylene Chloride	20.0	9.8	PASS

Method 8260B Instrument System Performance Check 06/02/1999 2

Compound	Min Response Factor	Response Factor	Status
monobromobenzene	.1010	0.279	PASS
monobromobenzene	.3000	1.217	PASS
monobromomethane (Methyl Chloride)	.1000	0.555	PASS
1,2-Dichloroethane	.1000	1.105	PASS
1,2,2,2-Tetrachloroethane	.3000	1.596	PASS

Method 8260B Matrix Spike/Duplicate on Sample 409602 06/02/1999 2

Compound	First (%)	Second (%)	%Difference
benzene	109	111	1.8
monobromobenzene	113	115	1.8
1,2-Dichloroethylene	107	109	1.9
toluene	110	112	1.8
1,1-dichloroethylene	110	113	2.7





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## Organic Quality Control/Quality Assurance for Project 102380

DPA Method 9270C	Instrument Tune	06/04/1999	1		
Mass	Reference Mass	Min Abundance	Max Abundance	Result	Status
DETPP Mass 51	198	30.0	60.0	59.1	PASS
DETPP Mass 68	69	0	2.00	0.0	PASS
DETPP Mass 69	198	0	100	62.8	PASS
DETPP Mass 70	69	0	2.00	0.0	PASS
DETPP Mass 127	198	40.0	60.0	51.2	PASS
DETPP Mass 197	198	0	1.00	0.0	PASS
DETPP Mass 198	198	100	100	100.0	PASS
DETPP Mass 199	198	5.00	9.00	6.9	PASS
DETPP Mass 275	198	10.0	30.0	21.3	PASS
DETPP Mass 365	198	1.00	100	2.9	PASS
DETPP Mass 441	443	0	100	81.5	PASS
DETPP Mass 442	198	40.0	100	59.7	PASS
DETPP Mass 443	442	17.0	23.0	19.2	PASS

Instrument Calibration Check	06/04/1999	1		
Compound	Max %Rel. Std.	%Deviation	Status	
benzene	30.0	-4.2	PASS	
benzo(a)pyrene	30.0	-3.0	PASS	
2-Chloro-3-methylphenol	30.0	-8.0	PASS	
1,4-Dichlorobenzene	30.0	-2.7	PASS	
1,4-Dichlorophenol	30.0	-3.9	PASS	
1-n-octylphthalate	30.0	-17.0	PASS	
fluoranthene	30.0	3.6	PASS	
hexachlorobutadiene	30.0	-21.0	PASS	
2-Nitrophenol	30.0	-0.8	PASS	
2-Nitrosodiphenylamine (as DPA)	30.0	-7.7	PASS	
2,4-dichlorophenol	30.0	0.2	PASS	
phenol	30.0	0.4	PASS	
1,4,6-Trichlorophenol	30.0	-2.4	PASS	

PA Method 8270C	Instrument System Performance Check	06/04/1999	1	
Compound	Min Response Factor	Response Factor	Status	
1,4-Dinitrophenol	.0500	0.114	PASS	
hexachlorocyclopentadiene	.0500	0.269	PASS	
2-Nitrophenol	.0500	0.282	PASS	
2-Nitrosodi-n-propylamine	.0500	0.907	PASS	

A Method 8151A	Blank	06/02/1999	1	
Compound	Result			
4,5-TP (Silvex)	ND			
4-Dichlorophenoxyacetic acid	ND			

A Method 8151A	Standard	06/02/1999	1	
Compound	Concentration	Result	%Difference	

05007



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### Organic Quality Control/Quality Assurance for Project 102380

4,5-TP (Silvex)	150	157	4.7
4 Dichlorophenoxyacetic acid	150	147	-2.0

Method 8081A Blank 06/02/1999 1

Compound	Result
----------	--------

rin	ND
-----	----

pha-BHC(hexachlorocyclohexane)	ND
--------------------------------	----

ia-BHC(hexachlorocyclohexane)	ND
-------------------------------	----

ta-BHC(hexachlorocyclohexane)	ND
-------------------------------	----

ma-BHC (Lindane)	ND
------------------	----

ordane	ND
--------	----

-DDD	ND
------	----

-DDE	ND
------	----

-DDT	ND
------	----

ldrin	ND
-------	----

osulfan I (alpha)	ND
-------------------	----

osulfan II (beta)	ND
-------------------	----

osulfan sulfate	ND
-----------------	----

rin	ND
-----	----

rin aldehyde	ND
--------------	----

tachlor	ND
---------	----

tachlor epoxide	ND
-----------------	----

aphene	ND
--------	----

noxychlor	ND
-----------	----

Method 8081A Standard 06/02/1999 1

Compound	Concentration	Result	%Difference
----------	---------------	--------	-------------

rin	100	98.5	-1.5
-----	-----	------	------

ia-BHC(hexachlorocyclohexane)	100	99.6	-0.40
-------------------------------	-----	------	-------

i-BHC(hexachlorocyclohexane)	100	91.1	-8.9
------------------------------	-----	------	------

ia-BHC(hexachlorocyclohexane)	100	99.4	-0.60
-------------------------------	-----	------	-------

ia-BHC (Lindane)	100	97.5	-2.5
------------------	-----	------	------

-DDD	100	97.1	-2.9
------	-----	------	------

-DDE	100	99.6	-0.40
------	-----	------	-------

-DDT	100	96.7	-3.3
------	-----	------	------

ldrin	100	99.7	-0.30
-------	-----	------	-------

osulfan I (alpha)	100	98.6	-1.4
-------------------	-----	------	------

osulfan II (beta)	100	95.9	-4.1
-------------------	-----	------	------

osulfan sulfate	100	96.5	-3.5
-----------------	-----	------	------

rin	100	99.3	-0.70
-----	-----	------	-------

rin aldehyde	100	94.4	-5.6
--------------	-----	------	------

tachlor	100	98.2	-1.8
---------	-----	------	------

tachlor epoxide	100	98.7	-1.3
-----------------	-----	------	------

noxychlor	100	91.5	-8.5
-----------	-----	------	------

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Flash Point (Reg. Limit 140.0 F)

(Analyzed: 05/28/1999 1515 PRE Verified: 06/02/1999 09:03 NGT)

Sample	Type	Result	Value	Unit	Percent
	Standard	84	80	Degrees F	5.0
409123	Duplicate	132	129	Degrees F	1.5

TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/08/1999 1139 WOB Verified: 06/08/1999 12:17 WJP)

Sample	Type	Result	Value	Unit	Percent
	Standard	1.91	2.00	ppm	-4.5
	Standard	0.962	1.00	ppm	-3.8
	Standard	0.946	1.00	ppm	-5.4
409349	Direct SPK		101	ppm	101
409349	Direct SPK		98	ppm	98

TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0993	0.100	ppm	-0.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.304	0.300	ppm	1.3
	Standard	0.301	0.300	ppm	0.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.297	0.300	ppm	-1.0
	Standard	0.300	0.300	ppm	0.0
	Standard	0.102	0.100	ppm	2.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.319	0.300	ppm	6.3
	Standard	0.318	0.300	ppm	6.0
	Standard	0.321	0.300	ppm	7.0
	LCS	0.0616	0.100	ppm	-38.4
	LCS	0.0155	0.0200	ppm	-22.5
	LCS	0.0150	0.0200	ppm	-25.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
09316	Spike		0.100	ppm	71
09333	Spike		0.100	ppm	66
09334	Spike		0.100	ppm	64
09335	Spike		0.100	ppm	66
09336	Spike		0.100	ppm	67
09337	Spike		0.100	ppm	67
09350	Spike		0.100	ppm	67

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## SET Quality Control/Quality Assurance for Project 102380

## TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
350	Spike		0.100	ppm	61
374	Spike		0.0200	ppm	64
374	Spike		0.0200	ppm	62
375	Spike		0.100	ppm	61
376	Spike		0.100	ppm	62
377	Spike		0.100	ppm	63
378	Spike		0.100	ppm	63
420	Spike		0.100	ppm	46
422	Spike		0.100	ppm	57
561	Spike		0.100	ppm	59

## TCLP Arsenic (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0995	0.100	ppm	-0.5
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.295	0.300	ppm	-1.7
	Standard	0.321	0.300	ppm	7.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.316	0.300	ppm	5.3
	Standard	0.317	0.300	ppm	5.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.315	0.300	ppm	5.0
	LCS	0.482	0.500	ppm	-3.6
	LCS	0.0941	0.100	ppm	-5.9
	Blank	<0.100		ppm	
	Blank	<0.500		ppm	
316	Spike		0.500	ppm	102
333	Spike		0.500	ppm	100
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
349	Spike		0.500	ppm	99
349	Spike		0.500	ppm	99
350	Spike		0.500	ppm	99
350	Spike		0.500	ppm	95
374	Spike		0.100	ppm	91
374	Spike		0.100	ppm	88

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## TCLP Arsenic (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
09375	Spike		0.500	ppm	102
09376	Spike		0.500	ppm	102
09377	Spike		0.500	ppm	101
09378	Spike		0.500	ppm	103

## TCLP Barium (Reg. Limit 100.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0993	0.100	ppm	-0.7
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.304	0.300	ppm	1.3
	Standard	0.296	0.300	ppm	-1.3
	Standard	0.312	0.300	ppm	4.0
	Standard	0.304	0.300	ppm	1.3
	Standard	0.311	0.300	ppm	3.7
	Standard	0.103	0.100	ppm	3.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.318	0.300	ppm	6.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.317	0.300	ppm	5.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.318	0.300	ppm	6.0
	LCS	0.433	0.500	ppm	-13.4
	LCS	0.106	0.100	ppm	6.0
	LCS	0.105	0.100	ppm	5.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	0.086		ppm	
9316	Spike		0.500	ppm	101
9333	Spike		0.500	ppm	94
9334	Spike		0.500	ppm	97
9335	Spike		0.500	ppm	96
9349	Spike		0.500	ppm	95
9349	Spike		0.500	ppm	96
9350	Spike		0.500	ppm	97
9350	Spike		0.500	ppm	92
9374	Spike		0.100	ppm	80
9374	Spike		0.100	ppm	58
9377	Spike		0.500	ppm	95
9377	Spike		0.500	ppm	95

05011



## SET Quality Control/Quality Assurance for Project 102380

## TCLP Barium (Reg. Limit 100.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
377	Spike		0.500	ppm	95
378	Spike		0.500	ppm	96
420	Spike		0.500	ppm	98
422	Spike		0.500	ppm	96
561	Spike		0.500	ppm	99

## TCLP Cadmium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.102	0.100	ppm	2.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.305	0.300	ppm	1.7
	Standard	0.303	0.300	ppm	1.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.302	0.300	ppm	0.7
	Standard	0.305	0.300	ppm	1.7
	Standard	0.104	0.100	ppm	4.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.317	0.300	ppm	5.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.317	0.300	ppm	5.7
	LCS	0.223	0.250	ppm	-10.8
	LCS	0.0499	0.0500	ppm	-0.2
	LCS	0.0495	0.0500	ppm	-1.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
316	Spike		0.250	ppm	101
333	Spike		0.250	ppm	96
334	Spike		0.250	ppm	95
335	Spike		0.250	ppm	97
349	Spike		0.250	ppm	96
349	Spike		0.250	ppm	98
350	Spike		0.250	ppm	98
350	Spike		0.250	ppm	92
374	Spike		0.0500	ppm	114
374	Spike		0.0500	ppm	110
375	Spike		0.250	ppm	95



SET Quality Control/Quality Assurance for Project 102380

TCLP Cadmium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
409376	Spike		0.250	ppm	80
409377	Spike		0.250	ppm	94
409378	Spike		0.250	ppm	96
409420	Spike		0.250	ppm	93
409422	Spike		0.250	ppm	95
409561	Spike		0.250	ppm	97

TCLP Chromium (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0998	0.100	ppm	-0.2
	Standard	0.309	0.300	ppm	3.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.300	0.300	ppm	0.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.317	0.300	ppm	5.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.313	0.300	ppm	4.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.318	0.300	ppm	6.0
	LCS	0.485	0.500	ppm	-3.0
	LCS	0.0980	0.100	ppm	-2.0
	Blank	<0.0200		ppm	
	Blank	<0.100		ppm	
09316	Spike		0.500	ppm	103
09333	Spike		0.500	ppm	98
09334	Spike		0.500	ppm	98
09335	Spike		0.500	ppm	102
09349	Spike		0.500	ppm	98
09349	Spike		0.500	ppm	98
09350	Spike		0.500	ppm	98
09350	Spike		0.500	ppm	92
09374	Spike		0.100	ppm	100
09374	Spike		0.100	ppm	86
09375	Spike		0.500	ppm	103
09376	Spike		0.500	ppm	98
09376	Spike		0.500	ppm	97
09376	Spike		0.500	ppm	100

05013



## TCLP Mercury (Reg. Limit 0.2)

(Analyzed: 06/02/1999 1412 WOB Verified: 06/03/1999 12:14 NGT)

ple	Type	Result	Value	Unit	Percent
	Standard	23.7	25.0	ppb	-5.2
	Standard	4.87	5.00	ppb	-2.6
	Standard	4.80	5.00	ppb	-4.0
	Standard	4.83	5.00	ppb	-3.4
	Standard	4.75	5.00	ppb	-5.0
	LCS	9.05	10.0	ppb	-9.5
	LCS	10.5	10.0	ppb	5.0
	Blank	<0.10		ppb	
	Blank	<0.15		ppb	
49	Spike		10.0	ppb	97
78	Spike		10.0	ppb	101
78	Spike		10.0	ppb	93
20	Spike		10.0	ppb	94
22	Spike		10.0	ppb	100
61	Spike		10.0	ppb	91
52	Spike		10.0	ppb	76
52	Spike		10.0	ppb	80
	Standard	24.7	25.0	ppb	-1.2
	Standard	5.13	5.00	ppb	2.6
	Standard	5.28	5.00	ppb	5.6
	Standard	5.23	5.00	ppb	4.6
	Standard	5.08	5.00	ppb	1.6
	LCS	9.38	10.0	ppb	-6.2
	Blank	<0.15		ppb	
34	Spike		10.0	ppb	96
49	Spike		10.0	ppb	100
50	Spike		10.0	ppb	102
50	Spike		10.0	ppb	101
74	Spike		10.0	ppb	52
77	Spike		10.0	ppb	95
52	Spike		10.0	ppb	95
52	Spike		10.0	ppb	93
42	Spike		10.0	ppb	102
42	Spike		10.0	ppb	97

## TCLP Lead (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

ple	Type	Result	Value	Unit	Percent
	Standard	0.0986	0.100	ppm	-1.4
	Standard	0.310	0.300	ppm	3.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.304	0.300	ppm	1.3





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TCLP Lead (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.317	0.300	ppm	5.7
	Standard	0.309	0.300	ppm	3.0
	Standard	0.315	0.300	ppm	5.0
	Standard	0.103	0.100	ppm	3.0
	Standard	0.322	0.300	ppm	7.3
	Standard	0.321	0.300	ppm	7.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.323	0.300	ppm	7.7
	Standard	0.322	0.300	ppm	7.3
	Standard	0.323	0.300	ppm	7.7
	LCS	0.449	0.500	ppm	-10.2
	LCS	0.102	0.100	ppm	2.0
	LCS	0.101	0.100	ppm	1.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
9316	Spike		0.500	ppm	105
9333	Spike		0.500	ppm	102
9334	Spike		0.500	ppm	103
9335	Spike		0.500	ppm	105
9349	Spike		0.500	ppm	103
9349	Spike		0.500	ppm	104
9350	Spike		0.500	ppm	104
9350	Spike		0.500	ppm	99
9374	Spike		0.100	ppm	134
9374	Spike		0.100	ppm	84
9375	Spike		0.500	ppm	106
9376	Spike		0.500	ppm	102
9377	Spike		0.500	ppm	103
9378	Spike		0.500	ppm	103
9420	Spike		0.500	ppm	104
9422	Spike		0.500	ppm	102
9561	Spike		0.500	ppm	104

TCLP Selenium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0980	0.100	ppm	-2.0
	Standard	0.302	0.300	ppm	0.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.303	0.300	ppm	1.0

05015



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## SET Quality Control/Quality Assurance for Project 102380

## TCLP Selenium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.285	0.300	ppm	-5.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.323	0.300	ppm	7.7
	Standard	0.101	0.100	ppm	1.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.322	0.300	ppm	7.3
	Standard	0.324	0.300	ppm	8.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.306	0.300	ppm	2.0
	Standard	0.319	0.300	ppm	6.3
	LCS	0.487	0.500	ppm	-2.6
	LCS	0.108	0.100	ppm	8.0
	LCS	0.100	0.100	ppm	0.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
116	Spike		0.500	ppm	102
133	Spike		0.500	ppm	98
134	Spike		0.500	ppm	100
135	Spike		0.500	ppm	104
149	Spike		0.500	ppm	98
149	Spike		0.500	ppm	100
150	Spike		0.500	ppm	98
150	Spike		0.500	ppm	96
174	Spike		0.100	ppm	92
174	Spike		0.100	ppm	92
175	Spike		0.500	ppm	102
176	Spike		0.500	ppm	99
177	Spike		0.500	ppm	99
178	Spike		0.500	ppm	102
22	Spike		0.500	ppm	103
61	Spike		0.500	ppm	107

## Reactivity Cyanide (RL 250)

(Analyzed: 05/28/1999 1500 RSV Verified: 06/02/1999 11:28 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.196	0.20	ppm	-2.0
	Standard	0.100	0.10	ppm	0.0
	Standard	0.401	0.40	ppm	0.3
	Standard	0.401	0.40	ppm	0.3





## 3. List of Common Acronyms and Abbreviations and Data Validation Qualifiers

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### 3.1 Common Acronyms and Abbreviations

COC	Chain-of-Custody
DoD	Department of Defense
DQO	Data Quality Objective
FD	Field Duplicate
EB	Equipment Blank
EM	Engineering Manual
EPA	Environmental Protection Agency
HTRW	Hazardous, Toxic, Radioactive Waste
ICP	Inductively Coupled Plasma
IDL	Instrument Detection Limit
IWTP	Industrial Waste Treatment Plant
LAFB	Laredo Air Force Base
LB	Laboratory Blank
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
QA/QC	Quality Assurance/Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
SGR	Shotgun Range
TB	Trip Blank
USACE	United States Army Corps of Engineers

## 3.2 Data Validation Qualifiers

Code	Definition
2S	Second Source
BL	Blank
BS	Blank Spike/LCS
CC	Continuing Calibration
DL	Dilution
FD	Field Duplicate
HT	Holding Time
IB	In-Between (metals - B's → J's )
IC	Initial Calibration
IS	Internal Standard
LD	Lab Duplicate
MD	Matrix Spike Duplicate
MS	Matrix Spike
OT	Other (see DV worksheet)
PD	Pesticide Degradation
PS	Post Spike
RE	Re-extraction
SD	Serial Dilution
SS	Spiked Surrogate
TN	Tune

05029

## 4. Chain of Custody Synopsis

Chemical Analytical Methods					
Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010
Samples Collected on 21 May 1999					
001000N1	SO	0836	N	X	X <sup>1</sup>
001002N1	SO	0842	N	X	
002000N1	SO	0903	N	X	X <sup>1</sup>
002002N1	SO	0914	N	X	
003000N1	SO	0934	N	X	
003002N1	SO	0940	N	X	
004000N1	SO	0958	N	X	X <sup>1</sup>
004002N1	SO	1004	N	X	
005000N1	SO	1022	N	X	X <sup>1</sup>
005002N1	SO	1030	N	X	
006000N1	SO	1128	N	X	
006000FD1	SO	1128	FD	X	X <sup>1</sup>
006002N1	SO	1135	N	X	
006002FD1	SO	1135	FD	X	
007000N1	SO	1155	N	X	
007002N1	SO	1200	N	X	
008000N1	SO	1358	N	X	
008002N1	SO	1415	N	X	
009000N1	SO	1435	N	X	
009002N1	SO	1500	N	X	
010000N1	SO	1515	N	x	
010000FD1	SO	1515	FD	X	
010002N1	SO	1522	N	X	
011000N1	SO	1538	N	X	
011002N1	SO	1545	N	X	
012000N1	SO	1605	N	X	

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Chemical Analytical Methods						
Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010	
012002N1	SO	1610	N	X		
SGRBHWQ012000EB1	WQ	1600	EB	X		
Samples Collected on 22 May 1999						
013000N1	SO	0820	N	X		
013002N1	SO	0830	N	X		
014000N1	SO	0845	N	X		
014002N1	SO	0850	N	X		
015000N1	SO	0922	N	X		
015002N1	SO	0930	N	X		
SGRBHWQ01500EB1	WQ	0900	EB	X		
Samples Collected on 24 June 1999						
016000N1	SO	1545	N	X <sup>2</sup>		X
017000N1	SO	1615	N	X <sup>2</sup>		X
018000N1	SO	1645	N	X <sup>2</sup>		X
018000MS1	SO	1645	FD	X <sup>2</sup>		X

Notes: X – Southwest Laboratory of Oklahoma

FD – Field Duplicate

EB - Equipment Blank

X<sup>1</sup> - Sample re-logged into the laboratory as SDG 39086.X<sup>2</sup> - Sample re-logged into the laboratory as SDG 39390.

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## 5. Sample Cross Reference Tables

### 5.1 Sample Cross Reference by Laboratory ID

Lab Sample ID	Sample ID	Sample Type
38707.01	SGRBHSO001000N1	N
38707.02	SGRBHSO001002N1	N
38707.03	SGRBHSO002000N1	N
38707.04	SGRBHSO002002N1	N
38707.05	SGRBHSO003000N1	N
38707.06	SGRBHSO003002N1	N
38707.07	SGRBHSO004000N1	N
38707.08	SGRBHSO004002N1	N
38707.09	SGRBHSO005000N1	N
38707.10	SGRBHSO005002N1	N
38707.11	SGRBHSO006000N1	N
38707.12	SGRBHSO006000FD1	FD
38707.13	SGRBHSO006002N1	N
38707.14	SGRBHSO006002FD1	FD
38707.15	SGRBHSO007000N1	N
38707.16	SGRBHSO007002N1	N
38707.17	SGRBHSO008000N1	N
38707.18	SGRBHSO008002N1	N
38707.19	SGRBHSO009000N1	N
38707.20	SGRBHSO010000N1	N
38707.21	MS from SGRBHSO010000N1	MS
38707.22	MSD from SGRBHSO010000N1	MSD
38708.01	SGRBHSO009002N1	N
38708.02	SGRBHSO010000FD1	FD
38708.03	SGRBHSO010002N1	N
38708.04	SGRBHSO011000N1	N
38708.05	SGRBHSO011002N1	N
38708.06	SGRBHWQ012000EB1	EB
38708.07	SGRBHSO012000N1	N

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Lab Sample ID	Sample ID	Sample Type
38708.08	SGRBHSO012002N1	N
38708.09	SGRBHSO013000N1	N
38708.10	SGRBHSO013002N1	N
38708.11	SGRBHSO014000N1	N
38708.12	SGRBHSO014002N1	N
38708.13	SGRBHWQ015000EB1	EB
38708.14	SGRBHSO015000N1	N
38708.15	SGRBHSO015002N1	N
39086.01	SGRBHSO002000N1	N
39086.02	SGRBHSO004000N1	N
39086.03	SGRBHSO005000N1	N
39086.04	SGRBHSO006000FD1	FD
39086.05	SGRBHSO001000N1	N
39177.01	SGRBHSO016000N1	N
39177.02	SGRBHSO017000N1	N
39177.03	SGRBHSO018000N1	N
39177.04	SGRBHSO018000MS1	FD
39390.01	SGRBHSO016000N1	N
39390.02	SGRBHSO017000N1	N
39390.03	SGRBHSO018000N1	N
39390.04	SGRBHSO018000MS1	N

Note: The laboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

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## 5.2 Sample Cross Reference by Sample ID

Sample ID	Lab Sample ID	Sample Type
SGRBHSO001000N1	38707.01	N
SGRBHSO001002N1	38707.02	N
SGRBHSO002000N1	38707.03	N
SGRBHSO002002N1	38707.04	N
SGRBHSO003000N1	38707.05	N
SGRBHSO003002N1	38707.06	N
SGRBHSO004000N1	38707.07	N
SGRBHSO004002N1	38707.08	N
SGRBHSO005000N1	38707.09	N
SGRBHSO005002N1	38707.10	N
SGRBHSO006000N1	38707.11	N
SGRBHSO006000FD1	38707.12	FD
SGRBHSO006002N1	38707.13	N
SGRBHSO006002FD1	38707.14	FD
SGRBHSO007000N1	38707.15	N
SGRBHSO007002N1	38707.16	N
SGRBHSO008000N1	38707.17	N
SGRBHSO008002N1	38707.18	N
SGRBHSO009000N1	38707.19	N
SGRBHSO010000N1	38707.20	N
MS from SGRBHSO010000N1	38707.21	MS
MSD from SGRBHSO010000N1	38707.22	MSD
SGRBHSO009002N1	38708.01	N
SGRBHSO010000FD1	38708.02	FD
SGRBHSO010002N1	38708.03	N
SGRBHSO011000N1	38708.04	N
SGRBHSO011002N1	38708.05	N
SGRBHWQ012000EB1	38708.06	EB
SGRBHSO012000N1	38708.07	N
SGRBHSO012002N1	38708.08	N
SGRBHSO013000N1	38708.09	N
SGRBHSO013002N1	38708.10	N

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Sample ID	Lab Sample ID	Sample Type
SGRBHSO014000N1	38708.11	N
SGRBHSO014002N1	38708.12	N
SGRBHWQ015000EB1	38708.13	EB
SGRBHSO015000N1	38708.14	N
SGRBHSO015002N1	38708.15	N
SGRBHSO002000N1	39086.01	N
SGRBHSO004000N1	39086.02	N
SGRBHSO005000N1	39086.03	N
SGRBHSO006000FD1	39086.04	FD
SGRBHSO001000N1	39086.05	N
SGRBHSO016000N1	39177.01	N
SGRBHSO017000N1	39177.02	N
SGRBHSO018000N1	39177.03	N
SGRBHSO018000MS1	39177.04	FD
SGRBHSO016000N1	39390.01	N
SGRBHSO017000N1	39390.02	N
SGRBHSO018000N1	39390.03	N
SGRBHSO018000MS1	39390.04	N

Note: The laboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.



## 6. Laredo Air Force Base – Site Investigation - SGR Site

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### 6.1 Metals

Soil samples were collected and analyzed for Lead, following SW-846 methodology. In addition, selected samples were analyzed for lead after undergoing the Synthetic Precipitation Leaching Procedure (SPLP), SW-846 method 1312. The number of samples analyzed under this Laboratory Sample Delivery Group (SDG), are outlined in Section 4.0 of this report.

All initial and continuing calibration criteria were met.

ICP serial dilutions were carried out at the frequency of one per batch. All criteria were met, except as noted below:

- The serial dilution provided in SDG 38708 was reported at 12.6 percent deviation. The results for all associated samples in SDG 38708 were flagged "J", as estimated.

#### 6.1.1 Accuracy

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) and recoveries were within acceptable quality control limits.

#### 6.1.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

The laboratory sample duplicate values were within acceptable quality control limits.

Comparison of the detected parameters in the field and quality control duplicate samples reflected no reportable differences, except as noted below:

- The RPD for Field duplicates (SGRBHSO006000N1 and SGRBHSO006000FD1) was high at 78.4 percent. The results in these two samples have been flagged "J", as estimated.

### 6.1.3 Representativeness

The initial calibration blank, continuing calibration blank and laboratory method blank samples were reported free of contamination, except as noted below:

- Lead was detected in a continuing calibration blank at a concentration of 2.4 ug/L. No sample results were affected.

All samples were analyzed within the required 180-day holding time.

No dilutions were required in the analysis of these samples.

### 6.1.4 Comparability

Quality assurance samples were collected and the results provided to the USACE. The USACE will provide a supplemental review and comparison of the field and quality assurance results where applicable.

## 6.2 Technical Summary

A complete review of the laboratory data collected during the investigation of the Laredo AFB Site Investigation sampling event was performed. Upon completion, the following items were noted:

The chain-of-custody and field data forms were complete and contained the required information without any noted exceptions.

## 6.3 Completeness

All of the data have been qualified according to the findings in the sections listed above. In addition, the laboratory qualified detected concentrations below the reporting limit with "B" qualifiers. During data validation, the "B" qualifiers received from the laboratory were changed to "J" qualifiers. While some of the data validated for this sampling event were qualified as estimated (J), none of the data were rejected (where no valid result for parameter remains). The data is 100 percent complete, therefore the goal of 90 percent completeness has been met.

## 6.4 Conclusions

A review of the analytical data submitted regarding the May/June 1999 site investigation of the former Laredo AFB Shotgun Ranges by CH2M HILL has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered accurate, except in those cases where they have been qualified as discussed in the previous sections.

## 6.5 Laredo AFB, Texas, Lead Data Qualification Summary – SGR Site

SDG	Sample	Analyte	Reason	Flag	A or P
38707	SGRBHSO006000N1 SGRBHSO006000FD	Pb	Field Duplicate RPD	J	A
38708	ALL	Pb	Serial Dilution	J	A

# 7. Quality Assurance Summary Table

Quality Control/Quality Assurance Results Outside of Quality Control Limits					
Former Laredo Air Force Base Shotgun Ranges					
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
Lead / SDG 38707	SGRBHSO001000N1 SGRBHSO001002N1 SGRBHSO002000N1 SGRBHSO002002N1 SGRBHSO003000N1 SGRBHSO003002N1 SGRBHSO004000N1 SGRBHSO004002N1 SGRBHSO005000N1 SGRBHSO005002N1 SGRBHSO006000N1 SGRBHSO006000FD1 SGRBHSO006002N1 SGRBHSO006002FD1 SGRBHSO007000N1 SGRBHSO007002N1 SGRBHSO008000N1 SGRBHSO008002N1 SGRBHSO009000N1 SGRBHSO010000N1 MS from SGRBHSO010000N1 MSD from SGRBHSO010000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: 6000N1 / 6000FD1 = 10 / 22.9 RPD = 78.4 - Flag "J"	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
Lead / SDG 38708	SGRBHSO009002N1 SGRBHSO010000FD1 SGRBHSO010002N1 SGRBHSO011000N1 SGRBHSO011002N1 SGRBHSO012000EB1 SGRBHSO012000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: CCB - PB = 2.3 ug/L - no Flags	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: 12.6 %D - Flag "J"

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Quality Control/Quality Assurance Results Outside of Quality Control Limits					
Former Laredo Air Force Base Shotgun Ranges					
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
Lead / SPLP Lead SDG 39086	SGRBHSD012002N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD013000N1				
	SGRBHSD013002N1				
	SGRBHSD014000N1				
	SGRBHSD014002N1				
	SGRBHWQ015000EB1				
Lead / SPLP Lead SDG 39177	SGRBHSD015000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD015002N1				
	SGRBHSD020000N1				
	SGRBHSD004000N1				
	SGRBHSD005000N1				
	SGRBHSD006000FD1				
Lead / SDG 39390	SGRBHSD001000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD016000N1				
	SGRBHSD017000N1				
	SGRBHSD018000N1				
	SGRBHSD018000MS1				
	SGRBHSD018000MS1				

05040

## **Sample Analytical Results**

05041



Data Review and Validation for:

Metals and/or Cyanide LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	38707
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: <u>22 total</u>
Field QC Samples:	<u>11/12 + 13/14 - FDU, 20/21/22 - NAT/MS/MSD</u>	
Reviewed by & Date:	<u>H. Kelly 4/13/2000</u>	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input checked="" type="checkbox"/> LCS only <input type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED

QC Item	Comments
<u>FDU</u>	<u>11/12 = 10 / 22.9 RPD = 78.4</u>
	<u>Flag "I" results in 11/12.</u>



Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.01\_\_\_\_\_  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99\_\_\_\_\_  
% Solids: \_\_\_\_\_ 87.9\_\_\_\_\_

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT\_ID: \_SGRBHS0001000N1

HS0001002N1

[illegible]

HR 4/1/3

HSO002000N1

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.03  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_\_  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT ID: SGRBHS0002000N1

FORM I - IN

05046

HS0002002N1

[illegible]

CLIENT\_ID: SGRBHS0002002N1

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HSO003000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.05  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99  
% Solids: 91.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_  
Color After: YELLOW\_\_\_\_

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments:

CLIENT ID: SGRBHS0003000N1

FORM I - IN

AL 4/13  
05048

SDG No.: 38707

Lab Sample ID: 38707.06

Date Received: 05/25/99

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0003002N1

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05043

CLIENT SAMPLE ID

HSO004000N1

[illegible]

Comments :

FORM I - IN

AK 4/13

05050

HS0004002N1

[illegible]

Comments:

CLIENT\_ID: SGRBHS0004002N1

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CLIENT SAMPLE ID

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.09  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99  
% Solids: 92.7\_\_\_\_\_

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0005000N1

FORM I - IN

05052

CLIENT SAMPLE ID

HSO005002N1

[illegible]

CLIENT\_ID: \_SGRBHS0005002N1\_\_\_\_\_

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HSO006000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.11  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99  
% Solids: 86.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_  
Color After: YELLOW\_\_\_\_

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments :

CLIENT\_ID: \_SGRBHS0006000N1.

FORM I - IN

05054

HSO006000FD

[illegible]

J FD

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: \_SGRBHS0006000FD

FORM I - IN

05055

4/1/3

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Lab Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.13  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 87.5

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0006002N1

## 1

HS0006002FD

SDG No.: 38707

Lab Sample ID: 38707.14

Date Received: 05/25/99

Color Before: BROWN \_\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: MEDIUM  
Color After: YELLOW \_\_\_\_\_ Clarity After: CLEAR \_\_\_\_\_ Artifacts: \_\_\_\_\_

CLIENT\_ID: SGRBHS0006002FD

4/13

05057

CLIENT SAMPLE ID

HSO007000N1

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0007000N1

4/13  
05058

HSO007002N1

[illegible]

Comments:

CLIENT ID: SGRBHS0007002N1

05053

4/1/3





HS0008002N1

[illegible]

4/13

CLIENT SAMPLE ID

HSO009000N1

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID: SGRBHS0009000N1

4/13  
05062

CLIENT SAMPLE ID

HSO0010000N

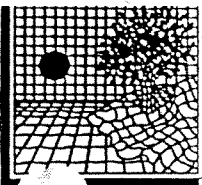
[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID: SGRBHS00010000N

4/13

05063



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

Hill

REPORT : 38707.05

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.05  
SAMPLE #: SGRBHS0003000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

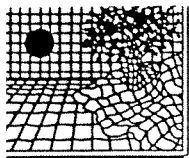
%MOISTURE: 8.8

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	8.6	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05064



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

12MHill

REPORT : 38707.10

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.10  
SAMPLE #: SGRBHSO005002N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

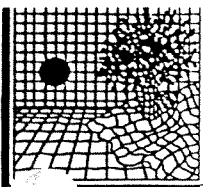
%MOISTURE: 10.7

## MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.9	su	06/05/99	SM 4500H/EPA	150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05065



# **SOUTHWEST LABORATORY OF OKLAHOMA, INC.**

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

LMHill

REPORT : 38707.17

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.17  
SAMPLE #: SGRBHSO008000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

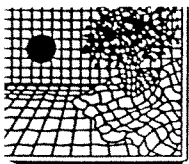
%MOISTURE: 7.8

## **MISCELLANEOUS**

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.8	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05066



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

H2MHill

REPORT : 38708.03

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38708.03  
SAMPLE #: SGRBHSO010002N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

%MOISTURE: 8.0

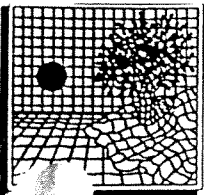
## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.9	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05067





# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

.2mHill

REPORT : 38708.07

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38708.07  
SAMPLE #: SGRBHSO012000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

%MOISTURE: 6.0

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	8.1	su	06/05/99	SM 4500H/EPA 150.1

OUND\* = RESULTS REPORTED AS RECEIVED

05068



Data Review and Validation for:

Metals and/or Cyanide

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	38708A
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	
Field QC Samples:	2/3, - FB/AB, 2 - MS/MSD, 6+13 - CB	
Reviewed by & Date:	[Signature] 4/13/2000	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blank wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> see blank wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

58K19K Dilution - Flagged "E" by lab.

QC Item	Comments
CCB	Lead detected in CCB at 2.3 ug/L. NO samples affected - NO Flags applied
SD	10 - 12.6 % RD - Flag all results "J".

HSO009002N1

[illegible]

Comments:

CLIENT ID: SGRBHS0009002N1

FORM I - IN

ALL 4/13/2000

05071

HS0010000FD

[illegible]

CLIENT\_ID: SGRBHS0010000FD

BL 4/13

05072

SDG No.: 38708A

Lab Sample ID: 38708.03  
Date Received: 05/25/99

[illegible]

J 50

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0010002FD

FORM I - IN

4/13

05073

HSO011000N1

[illegible]

Comments :

CLIENT ID: SGRBHS0011000N1

4/13

CLIENT SAMPLE ID

HSO011002N1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0011002N1

FORM I - IN

4/13

05075



HSO012000N1

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0012000N1

FORM I - IN

05076

CLIENT SAMPLE ID

HSO012002N1

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID: SGRBHS0012002N1

4/13  
05077

HSO013000N1

[illegible]

J SD

Comments :

CLIENT ID: SGRBHS0013000N1

FORM I - IN

05073

4/13

CLIENT SAMPLE ID

HS0013002N1

[illegible]

Comments :

CLIENT\_ID: SGRBHS0013002N1

4/13  
05079

HS0014002N1

[illegible]

T 5D

Comments:

CLIENT ID: SGRBHS0014002N1

FORM I - IN

05080

HS0015000N1

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0015000N1

05081

HS0015002N1

[illegible]

Comments:

CLIENT ID: SGRBHS0015002N1

05082

4/13

CLIENT SAMPLE ID

SGRBHWQ01200

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLEIENTS\_ID=\_SGRBHWQ012000EB

FORM I - IN

05083



SGRBHWQ01500

[illegible]

EB

CLEIENTS ID= SGRBHWQ015000EB

AK  
4/13

05084



Data Review and Validation for:

Metals and/or Cyanide

TOTAL 4 SPLP

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39086
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: 5
Field QC Samples:		
Reviewed by & Date:	H. K. L.	4/13/2020
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14 raw	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	2	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
		ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blk wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blk wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS

(NOTE: samples previously logged-in & analyzed as 50639707)

QC Item	Comments
---------	----------

	NO FLAGS APPLIED.
	(CHANGED "B" Qualifiers from lab → "J")

U.S. EPA - CLP

1  
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK	Contract: CH2M-OKC	SGRBHS000200
Lab Code: SWOK	Case No.: 39086	SAS No.:
Matrix (soil/water): SOIL		SDG No.: 39086
Level (low/med): LOW		Lab Sample ID: 39086.01
Solids: 92.1		Date Received: 06/21/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: COLORLESS

Clarity Before: \_\_\_\_\_  
Clarity After: \_\_\_\_\_

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT\_ID:=SGRBHS0002000N1

FORM I - IN

65087

1  
INORGANIC ANALYSES DATA SHEET

SGRBHS000400

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

CLIENT ID:=SGRBHS0004000N1

FORM I - IN

05088

U.S. EPA - CLP

## INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

Lab Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC

Job Code: SWOK Case No.: 39086 SAS No.: \_\_\_\_\_

Lab code: SMOK Case No.: 39086 SAS No.:             
Matrix (soil/water): SOIL Lab Sam:           

level (low/med): LOW -

Level: (low, med, h)	LOW	Date Recd
Solids:	92.6	

SGRBHS000500

SDG No.: 39086

Lab Sample ID: 39086.03

Date Received: 06/21/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: COLORLESS

Clarity Before: \_\_\_\_\_  
Clarity After: \_\_\_\_\_

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT\_ID:=SGRBHS0005000N1

FORM I - IN

05083

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

SGRBHS000600

```

ab Name: SOUTHWEST_LAB_OF_OK_____ Contract: CH2M-OKC_____
ab Code: SWOK_____ Case No.: 39086_____ SAS No.: _____ SDG No.: 39086_____
atrix (soil/water): SOIL_____ Lab Sample ID: 39086.04_____
evel (low/med): LOW_____ Date Received: 06/21/99_____
Solids: 90.0_____

```

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN      Clarity Before:      Texture: MEDIUM  
Color After: COLORLESS      Clarity After:      Artifacts:     

Comments:

CLIENT ID:=SGRBHS0006000FD

FORM I - IN

05090

CLIENT SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK	Contract: CH2M-OKC	SGRBHS000100
Lab Code: SWOK	Case No.: 39086	SAS No.:
Matrix (soil/water): SOIL		SDG No.: 39086
Level (low/med): LOW		Lab Sample ID: 39086.05
% Solids: 89.4		Date Received: 06/21/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: COLORLESS

Clarity Before: \_\_\_\_\_  
Clarity After: \_\_\_\_\_

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT\_ID:=SGRBHS0001000N1



1

INORGANIC ANALYSES DATA SHEET

002000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Code: SWOK\_\_\_\_\_ Case No.: 39086 SAS No.: \_\_\_\_\_ SDG No.: 39086\_\_\_\_\_  
ix (soil/water): WATER Lab Sample ID: 39086.01\_\_\_\_\_  
l (low/med): LOW Date Received: 06/21/99\_\_\_\_\_  
lids: 0.0\_\_\_\_\_

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

ments:  
CLIENT ID=SGRBHS0002000N1

FORM I - IN

05092

4/13

CLIENT SAMPLE ID

Name: SOUTHWEST LAB OF OK Contract: CH2M-OKC

Code: SWOK Case No.: 39086

SAS No. :

SDG No.: 39086

Matrix (soil/water): WATER

Lab Sample ID: 39086.02

```
rel (low/med): LOW
```

Date Received: 06/21/99

Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

```
Color Before:  COLORLESS
Color After:   COLORLESS
```

Clarity Before: CLEAR\_  
Clarity After: CLEAR\_

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

Comments:

CLIENT\_ID=SGRBHS0004000N1

FORM I - IN

05093

1

INORGANIC ANALYSES DATA SHEET

005000N1

Concentration Units (ug/L or mg/kg dry weight): UG/L\_

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT\_ID=SGRBHS0005000N1

FORM I - IN

05094

4/13

1  
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

006000FD

Name: SOUTHWEST_LAB_OF_OK	Contract: CH2M-OKC	006000FD
Code: SWOK	Case No.: 39086	SAS No.: SDG No.: 39086
Matrix (soil/water): WATER		Lab Sample ID: 39086.04
Rel (low/med): LOW		Date Received: 06/21/99
Solids: 0.0		

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

```
lor Before:  COLORLESS
lor After:   COLORLESS
```

```
Clarity Before: CLEAR_
Clarity After:  CLEAR_
```

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

ments:

CLIENT ID=SGRBHS0006000FD

FORM I - IN

35095

1

INORGANIC ANALYSES DATA SHEET

001000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Code: SWOK\_\_\_\_\_ Case No.: 39086 SAS No.: \_\_\_\_\_ SDG No.: 39086\_\_\_\_\_  
Matrix (soil/water): WATER Lab Sample ID: 39086.05\_\_\_\_\_  
Depth (low/med): LOW Date Received: 06/21/99\_\_\_\_\_  
Solids: 0.0\_\_\_\_\_

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Color Before: COLORLESS  
Color After: COLORLESS

```
Clarity Before: CLEAR_
Clarity After:  CLEAR_
```

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

ments:

CLIENT ID=SGRBHS0001000N1

FORM I - IN

05096

4/13



Data Review and Validation for:

TOTAL &amp; SPLP

Metals and/or Cyanide

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39177
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	
Field QC Samples:	Number of Samples: <u>6 total</u>	
Reviewed by & Date:	<u>H. Kelly</u> <u>4/13/2000</u>	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED  
(NOTE: sample #5 put on hold)

QC Item

Comments

BPKG/COC 18000 FD1 put on hold - NOT analyzed  
(changed "B" quantity from lab → "5")  
NO FLAGS APPLIED.

## 1

016000NI

SDG No.: 39177

Lab Sample ID: 39177.01  
Date Received: 06/26/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT\_ID: \_SGRBHS0016000N1

FORM I - IN

NA 4/13/2000

05093



CLIENT SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK	Contract: CH2M-OKC	017000N1
Lab Code: SWOK	Case No.: 39177	SAS No.: SDG No.: 39177
Matrix (soil/water): SOIL		Lab Sample ID: 39177.02
Level (low/med): LOW		Date Received: 06/26/99
% Solids: 83.2		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Color Before: BROWN\_\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: MEDIUM  
Color After: YELLOW\_\_\_\_\_ Clarity After: CLEAR\_\_\_\_\_ Artifacts: \_\_\_\_\_

Comments:

CLIENT\_ID: SGRBHS0017000N1

FORM I - IN

05100

SHY/12

## 1

018000N1

SDG No.: 39177

Lab Sample ID: 39177.03 -  
Date Received: 06/26/99

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT\_ID: \_SGRBHS0018000N1

FORM I - IN

4/13  
05101

CLIENT SAMPLE ID

SO016000N1

Concentration Units (ug/L or mg/kg dry weight): UG/L\_

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT\_ID=\_SGRBHS0016000N1

FORM I - IN

05102

CLIENT SAMPLE ID

SO017000N1

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-UT  
Lab Code: SWOK Case No.: 39177 SAS No.: SDG No.: 39177B  
Matrix (soil/water): WATER Lab Sample ID: 39177.02  
Level (low/med): LOW Date Received: 06/26/99  
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

J IR

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

Comments:

CLIENT\_ID=\_SGRBHS0017000N1

05103

SO018000N1

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT ID= SGRBHS0018000N1

05104



Data Review and Validation for:

Metals and/or Cyanide Urea Only

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39390
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	
Field QC Samples:	Number of Samples: <u>43</u>	
Reviewed by & Date:	<u>H. Kelley</u> <u>4/13/2000</u>	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	14,	Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	COC	Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input checked="" type="checkbox"/> None*	<input type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input type="checkbox"/> Meth	<input type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED  
(NOTE: sample #5 - put on hold)

QC Item

Comments

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NO FLAGS APPLIED  
(CHANGED "E" Qualifiers from Lab -> "J")

CLIENT SAMPLE ID

016000N1

Texture: MEDIUM  
Artifacts:

CLIENT\_ID\_=SGRBHS0016000NI

4/13/2002

05107



CLIENT SAMPLE ID

017000N1

Lab Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Lab Code: SWOK Case No.: 39390 SAS No.: SDG No.: 39390  
Matrix (soil/water): SOIL Lab Sample ID: 39390.02  
Level (low/med): LOW Date Received: 07/13/99  
% Solids: 83.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

J CS  
2/2/2000

Color Before: BROWN\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: MEDIUM  
Color After: YELLOW\_\_\_\_ Clarity After: \_\_\_\_\_ Artifacts: \_\_\_\_\_

Comments :

CLIENT\_ID=SGRBHS0017000N1

FORM I - IN

4/13

05108

CLIENT SAMPLE ID

018000N1

SDG No.: 39390

Lab Sample ID: 39390.03  
Date Received: 07/13/99

Texture: MEDIUM  
Artifacts:

CLIENT\_ID\_=SGRBHS0018000N1

FORM I - IN

65109

# **USACE Data Comparability Report**

05110

## Organic Quality Control/Quality Assurance for Project 102380

PA Method 8270C	Instrument Tune	06/04/1999	1		
Mass	Reference Mass	Min Abundance	Max Abundance	Result	Status
DETPP Mass 51	198	30.0	60.0	59.1	PASS
DETPP Mass 68	69	0	2.00	0.0	PASS
DETPP Mass 69	198	0	100	62.8	PASS
DETPP Mass 70	69	0	2.00	0.0	PASS
DETPP Mass 127	198	40.0	60.0	51.2	PASS
DETPP Mass 197	198	0	1.00	0.0	PASS
DETPP Mass 198	198	100	100	100.0	PASS
DETPP Mass 199	198	5.00	9.00	6.9	PASS
DETPP Mass 275	198	10.0	30.0	21.3	PASS
DETPP Mass 365	198	1.00	100	2.9	PASS
DETPP Mass 441	443	0	100	81.5	PASS
DETPP Mass 442	198	40.0	100	59.7	PASS
DETPP Mass 443	442	17.0	23.0	19.2	PASS

Instrument Calibration Check	06/04/1999	1		
Compound	Max %Rel. Std.	%Deviation	Status	
benzene	30.0	-4.2	PASS	
benzo(a)pyrene	30.0	-3.0	PASS	
2-Chloro-3-methylphenol	30.0	-8.0	PASS	
1,4-Dichlorobenzene	30.0	-2.7	PASS	
1,4-Dichlorophenol	30.0	-3.9	PASS	
1-n-octylphthalate	30.0	-17.0	PASS	
fluoranthene	30.0	3.6	PASS	
hexachlorobutadiene	30.0	-21.0	PASS	
2-Nitrophenol	30.0	-0.8	PASS	
2-Nitrosodiphenylamine (as DPA)	30.0	-7.7	PASS	
2,4-dichlorophenol	30.0	0.2	PASS	
phenol	30.0	0.4	PASS	
1,4,6-Trichlorophenol	30.0	-2.4	PASS	

PA Method 8270C	Instrument System Performance Check	06/04/1999	1	
Compound	Min Response Factor	Response Factor	Status	
1,4-Dinitrophenol	.0500	0.114	PASS	
hexachlorocyclopentadiene	.0500	0.269	PASS	
2-Nitrophenol	.0500	0.282	PASS	
2-Nitrosodi-n-propylamine	.0500	0.907	PASS	

A Method 8151A	Blank	06/02/1999	1	
Compound	Result			
4,5-TP (Silvex)	ND			
4-Dichlorophenoxyacetic acid	ND			

A Method 8151A	Standard	06/02/1999	1	
Compound	Concentration	Result	%Difference	

05007



Central TX Region

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Project Report: 102380

Client:

### Organic Quality Control/Quality Assurance for Project 102380

1,5-TP (Silvex)	150	157	4.7
1 Dichlorophenoxyacetic acid	150	147	-2.0
Method 8081A Blank	06/02/1999	1	
Compound	Result		
drin	ND		
alpha-BHC(hexachlorocyclohexane)	ND		
beta-BHC(hexachlorocyclohexane)	ND		
gamma-BHC(hexachlorocyclohexane)	ND		
gamma-BHC (Lindane)	ND		
ordane	ND		
-DDD	ND		
-DDE	ND		
-DDT	ND		
ldrin	ND		
osulfan I (alpha)	ND		
osulfan II (beta)	ND		
osulfan sulfate	ND		
rin	ND		
rin aldehyde	ND		
tachlor	ND		
tachlor epoxide	ND		
aphene	ND		
noxychlor	ND		

Method 8081A Standard	06/02/1999	1	
Compound	Concentration	Result	%Difference
rin	100	98.5	-1.5
alpha-BHC(hexachlorocyclohexane)	100	99.6	-0.40
beta-BHC(hexachlorocyclohexane)	100	91.1	-8.9
gamma-BHC(hexachlorocyclohexane)	100	99.4	-0.60
gamma-BHC (Lindane)	100	97.5	-2.5
-DDD	100	97.1	-2.9
-DDE	100	99.6	-0.40
-DDT	100	96.7	-3.3
ldrin	100	99.7	-0.30
osulfan I (alpha)	100	98.6	-1.4
osulfan II (beta)	100	95.9	-4.1
osulfan sulfate	100	96.5	-3.5
rin	100	99.3	-0.70
rin aldehyde	100	94.4	-5.6
tachlor	100	98.2	-1.8
tachlor epoxide	100	98.7	-1.3
noxychlor	100	91.5	-8.5

05008

Corporate Mailing: P.O. Box 9000, Kilgore, TX 75663-9000 -- 903/984-0551 -- FAX 903/984-5914

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Continued





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Project Report: 102380

Client:

## SET Quality Control/Quality Assurance for Project 102380

## Flash Point (Reg. Limit 140.0 F)

(Analyzed: 05/28/1999 1515 PRE Verified: 06/02/1999 09:03 NGT)

Sample	Type	Result	Value	Unit	Percent
	Standard	84	80	Degrees F	5.0
409123	Duplicate	132	129	Degrees F	1.5

## TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/08/1999 1139 WOB Verified: 06/08/1999 12:17 WJP)

Sample	Type	Result	Value	Unit	Percent
	Standard	1.91	2.00	ppm	-4.5
	Standard	0.962	1.00	ppm	-3.8
	Standard	0.946	1.00	ppm	-5.4
409349	Direct SPK		101	ppm	101
409349	Direct SPK		98	ppm	98

## TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0993	0.100	ppm	-0.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.304	0.300	ppm	1.3
	Standard	0.301	0.300	ppm	0.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.297	0.300	ppm	-1.0
	Standard	0.300	0.300	ppm	0.0
	Standard	0.102	0.100	ppm	2.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.319	0.300	ppm	6.3
	Standard	0.318	0.300	ppm	6.0
	Standard	0.321	0.300	ppm	7.0
	LCS	0.0616	0.100	ppm	-38.4
	LCS	0.0155	0.0200	ppm	-22.5
	LCS	0.0150	0.0200	ppm	-25.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
09316	Spike		0.100	ppm	71
09333	Spike		0.100	ppm	66
09334	Spike		0.100	ppm	64
09335	Spike		0.100	ppm	66
09336	Spike		0.100	ppm	67
09337	Spike		0.100	ppm	67
09350	Spike		0.100	ppm	67

05009



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Continued





## SET Quality Control/Quality Assurance for Project 102380

## TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
350	Spike		0.100	ppm	61
374	Spike		0.0200	ppm	64
374	Spike		0.0200	ppm	62
375	Spike		0.100	ppm	61
376	Spike		0.100	ppm	62
377	Spike		0.100	ppm	63
378	Spike		0.100	ppm	63
420	Spike		0.100	ppm	46
422	Spike		0.100	ppm	57
561	Spike		0.100	ppm	59

## TCLP Arsenic (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0995	0.100	ppm	-0.5
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.295	0.300	ppm	-1.7
	Standard	0.321	0.300	ppm	7.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.316	0.300	ppm	5.3
	Standard	0.317	0.300	ppm	5.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.315	0.300	ppm	5.0
	LCS	0.482	0.500	ppm	-3.6
	LCS	0.0941	0.100	ppm	-5.9
	Blank	<0.100		ppm	
	Blank	<0.500		ppm	
316	Spike		0.500	ppm	102
333	Spike		0.500	ppm	100
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
349	Spike		0.500	ppm	99
349	Spike		0.500	ppm	99
350	Spike		0.500	ppm	99
350	Spike		0.500	ppm	95
374	Spike		0.100	ppm	91
374	Spike		0.100	ppm	88



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Project Report: 102380

Client:

SET Quality Control/Quality Assurance for Project 102380

TCLP Arsenic (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
09375	Spike		0.500	ppm	102
09376	Spike		0.500	ppm	102
09377	Spike		0.500	ppm	101
09378	Spike		0.500	ppm	103

TCLP Barium (Reg. Limit 100.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0993	0.100	ppm	-0.7
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.304	0.300	ppm	1.3
	Standard	0.296	0.300	ppm	-1.3
	Standard	0.312	0.300	ppm	4.0
	Standard	0.304	0.300	ppm	1.3
	Standard	0.311	0.300	ppm	3.7
	Standard	0.103	0.100	ppm	3.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.318	0.300	ppm	6.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.317	0.300	ppm	5.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.318	0.300	ppm	6.0
	LCS	0.433	0.500	ppm	-13.4
	LCS	0.106	0.100	ppm	6.0
	LCS	0.105	0.100	ppm	5.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	0.086		ppm	
9316	Spike		0.500	ppm	101
9333	Spike		0.500	ppm	94
9334	Spike		0.500	ppm	97
9335	Spike		0.500	ppm	96
9349	Spike		0.500	ppm	95
9349	Spike		0.500	ppm	96
9350	Spike		0.500	ppm	97
9350	Spike		0.500	ppm	92
9374	Spike		0.100	ppm	80
9374	Spike		0.100	ppm	58
9377	Spike		0.500	ppm	95
9378	Spike		0.500	ppm	95

05011

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## TCLP Barium (Reg. Limit 100.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
377	Spike		0.500	ppm	95
378	Spike		0.500	ppm	96
420	Spike		0.500	ppm	98
422	Spike		0.500	ppm	96
561	Spike		0.500	ppm	99

## TCLP Cadmium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.102	0.100	ppm	2.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.305	0.300	ppm	1.7
	Standard	0.303	0.300	ppm	1.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.302	0.300	ppm	0.7
	Standard	0.305	0.300	ppm	1.7
	Standard	0.104	0.100	ppm	4.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.317	0.300	ppm	5.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.317	0.300	ppm	5.7
	LCS	0.223	0.250	ppm	-10.8
	LCS	0.0499	0.0500	ppm	-0.2
	LCS	0.0495	0.0500	ppm	-1.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
316	Spike		0.250	ppm	101
333	Spike		0.250	ppm	96
334	Spike		0.250	ppm	95
335	Spike		0.250	ppm	97
349	Spike		0.250	ppm	96
349	Spike		0.250	ppm	98
350	Spike		0.250	ppm	98
350	Spike		0.250	ppm	92
374	Spike		0.0500	ppm	114
374	Spike		0.0500	ppm	110
375	Spike		0.250	ppm	95



SET Quality Control/Quality Assurance for Project 102380

TCLP Cadmium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
409376	Spike		0.250	ppm	80
409377	Spike		0.250	ppm	94
409378	Spike		0.250	ppm	96
409420	Spike		0.250	ppm	93
409422	Spike		0.250	ppm	95
409561	Spike		0.250	ppm	97

TCLP Chromium (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0998	0.100	ppm	-0.2
	Standard	0.309	0.300	ppm	3.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.300	0.300	ppm	0.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.317	0.300	ppm	5.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.313	0.300	ppm	4.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.318	0.300	ppm	6.0
	LCS	0.485	0.500	ppm	-3.0
	LCS	0.0980	0.100	ppm	-2.0
	Blank	<0.0200		ppm	
	Blank	<0.100		ppm	
09316	Spike		0.500	ppm	103
09333	Spike		0.500	ppm	98
09334	Spike		0.500	ppm	98
09335	Spike		0.500	ppm	102
09349	Spike		0.500	ppm	98
09349	Spike		0.500	ppm	98
09350	Spike		0.500	ppm	98
09350	Spike		0.500	ppm	92
09374	Spike		0.100	ppm	100
09374	Spike		0.100	ppm	86
09375	Spike		0.500	ppm	103
09376	Spike		0.500	ppm	98
09377	Spike		0.500	ppm	97
09378	Spike		0.500	ppm	100

05013



## TCLP Mercury (Reg. Limit 0.2)

(Analyzed: 06/02/1999 1412 WOB Verified: 06/03/1999 12:14 NGT)

Sample	Type	Result	Value	Unit	Percent
	Standard	23.7	25.0	ppb	-5.2
	Standard	4.87	5.00	ppb	-2.6
	Standard	4.80	5.00	ppb	-4.0
	Standard	4.83	5.00	ppb	-3.4
	Standard	4.75	5.00	ppb	-5.0
	LCS	9.05	10.0	ppb	-9.5
	LCS	10.5	10.0	ppb	5.0
	Blank	<0.10		ppb	
	Blank	<0.15		ppb	
49	Spike		10.0	ppb	97
78	Spike		10.0	ppb	101
78	Spike		10.0	ppb	93
20	Spike		10.0	ppb	94
22	Spike		10.0	ppb	100
61	Spike		10.0	ppb	91
52	Spike		10.0	ppb	76
52	Spike		10.0	ppb	80
	Standard	24.7	25.0	ppb	-1.2
	Standard	5.13	5.00	ppb	2.6
	Standard	5.28	5.00	ppb	5.6
	Standard	5.23	5.00	ppb	4.6
	Standard	5.08	5.00	ppb	1.6
	LCS	9.38	10.0	ppb	-6.2
	Blank	<0.15		ppb	
34	Spike		10.0	ppb	96
49	Spike		10.0	ppb	100
50	Spike		10.0	ppb	102
50	Spike		10.0	ppb	101
74	Spike		10.0	ppb	52
77	Spike		10.0	ppb	95
52	Spike		10.0	ppb	95
52	Spike		10.0	ppb	93
42	Spike		10.0	ppb	102
42	Spike		10.0	ppb	97

## TCLP Lead (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0986	0.100	ppm	-1.4
	Standard	0.310	0.300	ppm	3.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.304	0.300	ppm	1.3





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## TCLP Lead (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.317	0.300	ppm	5.7
	Standard	0.309	0.300	ppm	3.0
	Standard	0.315	0.300	ppm	5.0
	Standard	0.103	0.100	ppm	3.0
	Standard	0.322	0.300	ppm	7.3
	Standard	0.321	0.300	ppm	7.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.323	0.300	ppm	7.7
	Standard	0.322	0.300	ppm	7.3
	Standard	0.323	0.300	ppm	7.7
	LCS	0.449	0.500	ppm	-10.2
	LCS	0.102	0.100	ppm	2.0
	LCS	0.101	0.100	ppm	1.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
9316	Spike		0.500	ppm	105
9333	Spike		0.500	ppm	102
9334	Spike		0.500	ppm	103
9335	Spike		0.500	ppm	105
9349	Spike		0.500	ppm	103
9349	Spike		0.500	ppm	104
9350	Spike		0.500	ppm	104
9350	Spike		0.500	ppm	99
9374	Spike		0.100	ppm	134
9374	Spike		0.100	ppm	84
9375	Spike		0.500	ppm	106
9376	Spike		0.500	ppm	102
9377	Spike		0.500	ppm	103
9378	Spike		0.500	ppm	103
9420	Spike		0.500	ppm	104
9422	Spike		0.500	ppm	102
9561	Spike		0.500	ppm	104

## TCLP Selenium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0980	0.100	ppm	-2.0
	Standard	0.302	0.300	ppm	0.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.303	0.300	ppm	1.0

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## TCLP Selenium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.285	0.300	ppm	-5.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.323	0.300	ppm	7.7
	Standard	0.101	0.100	ppm	1.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.322	0.300	ppm	7.3
	Standard	0.324	0.300	ppm	8.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.306	0.300	ppm	2.0
	Standard	0.319	0.300	ppm	6.3
	LCS	0.487	0.500	ppm	-2.6
	LCS	0.108	0.100	ppm	8.0
	LCS	0.100	0.100	ppm	0.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
316	Spike		0.500	ppm	102
333	Spike		0.500	ppm	98
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
349	Spike		0.500	ppm	98
349	Spike		0.500	ppm	100
350	Spike		0.500	ppm	98
350	Spike		0.500	ppm	96
374	Spike		0.100	ppm	92
374	Spike		0.100	ppm	92
375	Spike		0.500	ppm	102
376	Spike		0.500	ppm	99
377	Spike		0.500	ppm	99
378	Spike		0.500	ppm	102
22	Spike		0.500	ppm	103
61	Spike		0.500	ppm	107

## Reactivity Cyanide (RL 250)

(Analyzed: 05/28/1999 1500 RSV Verified: 06/02/1999 11:28 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.196	0.20	ppm	-2.0
	Standard	0.100	0.10	ppm	0.0
	Standard	0.401	0.40	ppm	0.3
	Standard	0.401	0.40	ppm	0.3

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## SET Quality Control/Quality Assurance for Project 102380

## Reactivity Cyanide (RL 250)

(Analyzed: 05/28/1999 1500 RSV Verified: 06/02/1999 11:28 SAH)

Sample	Type	Result	Value	Unit	Percent
	Blank	<0.005		ppm	
109349	Duplicate	ND	ND	mg/kg	0.0

## Reactivity Sulfide (RL 500)

(Analyzed: 05/28/1999 1000 RSV Verified: 05/28/1999 1654 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	2.01	2.0	ppm	0.5
	Standard	4.99	5.0	ppm	-0.2
	Blank	<0.05		ppm	
109349	Duplicate	ND	ND	mg/kg	0.0

## Total Petroleum Hydrocarbon

(Analyzed: 06/09/1999 1730 GDG Verified: 06/10/1999 16:25 SAH)

Sample	Type	Result	Value	Unit	Percent
09734	Standard	214	200	mg/L	7.0
09734	Standard	214	200	mg/L	7.0
	Blank	1.8		mg/L	
	Blank	<10		mg/L	
	Blank	<10		mg/L	
10255	Duplicate	3400	4200	mg/kg	14.5
08702	Standard	211	200	mg/L	5.5
38702	Standard	204	200	mg/L	2.0
	Blank	3.4		mg/L	
	Blank	<10		mg/L	
	Blank	<10		mg/L	
38702	Duplicate	1200	1100	mg/L	5.7
39380	Duplicate	15000	18000	mg/kg	12.5

## Laboratory pH

(Analyzed: 05/28/1999 1630 PRE Verified: 06/01/1999 17:27 NGT)

Sample	Type	Result	Value	Unit	Percent
	Standard	7.98	8.00	SU	-0.3
	Standard	7.96	8.00	SU	-0.5
	Standard	10.04	10.00	SU	0.4
	Standard	6.95	7.00	SU	-0.7
109349	Duplicate	7.4	7.4	SU	0.0

ML is the Minimum Analytical Level or Minimum Quantitation level (MQL). The MAL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL) as well as any dilutions or concentrations associated with this sample. Our analytical result must be above this MAL before we report a value for any parameter. Otherwise, we report ND (Not Detected above MAL) or "<" (less than) the quantitation limit listed in the MAL column. CAS is Chemical Abstract Service Registry Number.

Our analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without the approval of Ana-Lab Corp.

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certify that the results were generated using the above specified methods.

H. Whiteside, Ph.D., President



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05013





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Former Laredo  
ASTD

AFB

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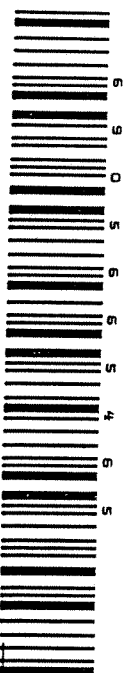
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**Appendix C**  
**Data Validation Report,**  
**Sample Analytical Results,**  
**and USACE Data Comparability Report**

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## **Data Validation Report**

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# 1. Introduction

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CH2M HILL was retained by the United States Army Corps of Engineers (USACE), Tulsa District, to perform a Site Investigation of the Shotgun Range (SGR) Site at the former Laredo Air Force Base (LAFB) located in Laredo, Texas.

Samples were collected by CH2M HILL Personnel, and shipped to Southwest Laboratory of Oklahoma, located in Broken Arrow, Oklahoma, for analysis. The requested analyses are listed in Section 4, Chain of Custody Synopsis.

This report covers the samples received as Laboratory Sample Delivery Groups (SDGs): 38707, 38708, 39086, 39177, and 39390.

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## 2. Data Validation/Data Quality Review Process

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The purpose of the data quality evaluation process is to assess the effect of the overall analytical process on the usability of the data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the method requirements; either the laboratory did, or did not, analyze the samples within the limits of the analytical method. Evaluation of matrix interferences is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, and duplicate sample results.

Before the analytical results were released by the laboratory, both the sample and QC data were carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. Additionally, the QC data were reduced and the resulting data were reviewed to ascertain whether they were within the laboratory-defined limits for accuracy and precision. Any non-conforming data were discussed in the data package cover letter and case narrative.

All of the data packages were reviewed by the project chemists using the process outlined in such guidance documents as the Environmental Protection Agency (EPA) *National Functional Guidelines for Evaluating Inorganic Analyses* (July 1994) and *National Functional Guidelines for Organic Data Review* (July 1994). Engineering Manual 200-1-6 (EM 200-1-6) US Army Corps of Engineers *Chemical Quality Assurance for Hazardous, Toxic and Radioactive Waste (HTRW) Projects* (October 1997) was consulted as well.

The data validation and review process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes. "Did it meet the Data Quality Objectives (DQOs) as defined in the workplan?" Areas of review included holding-time compliance, surrogate recoveries, matrix spiked sample results, method blank results, initial and continuing calibrations, laboratory control samples, internal standard response and retention times, instrument tuning criteria,

laboratory duplicate sample results, and field sample duplicate results. A data review worksheet was completed for each of these data packages.

Sample results that were not within the acceptance limits were appended with a qualifying flag, which consists of a single- or double-letter abbreviation that indicated a potential problem with the data. Although the qualifying flags originate during the data review and validation processes, they are included in the data summary tables deliverable so that the data will not be used indiscriminately. The following flags were used in this text:

- **U** Undetected. Samples were analyzed for this analyte, but it was not detected above the method detection limit (MDL) or instrument detection limit (IDL).
- **UJ** Detection limit estimated. Samples were analyzed for this analyte, but the results were qualified as not detected. The result is estimated.
- **J** Estimated. The analyte was present, but the reported value may not be accurate or precise.
- **R** Rejected. The data are unusable. (NOTE: Analyte/compound may or may not be present.)
- **=** Detected. Target parameter detected at the concentration reported.

Numerical sample results that were greater than the method detection limit but less than the Reporting Limit (RL) were qualified with a "J" for estimated.

Additionally, flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified EPA protocols or is of a technical advisory nature per sample matrix or method limitation.

Once the data validation review and processes were completed, the entire data set was reviewed for chemical compound frequencies of detection, dilution factors that might affect data usability, and patterns of target compounds distribution. The data set was also evaluated to identify potential data limitations, uncertainties, or both in the analytical results.

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The following sections detail any noted deviations. Tables summarizing data qualification flags, if any, are provided at the end of this report.

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# 3. List of Common Acronyms and Abbreviations and Data Validation Qualifiers

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## 3.1 Common Acronyms and Abbreviations

COC	Chain-of-Custody
DoD	Department of Defense
DQO	Data Quality Objective
FD	Field Duplicate
EB	Equipment Blank
EM	Engineering Manual
EPA	Environmental Protection Agency
HTRW	Hazardous, Toxic, Radioactive Waste
ICP	Inductively Coupled Plasma
IDL	Instrument Detection Limit
IWTP	Industrial Waste Treatment Plant
LAFB	Laredo Air Force Base
LB	Laboratory Blank
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
QA/QC	Quality Assurance/Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
SGR	Shotgun Range
TB	Trip Blank
USACE	United States Army Corps of Engineers

## 3.2 Data Validation Qualifiers

Code	Definition
2S	Second Source
BL	Blank
BS	Blank Spike/LCS
CC	Continuing Calibration
DL	Dilution
FD	Field Duplicate
HT	Holding Time
IB	In-Between (metals - B's → J's )
IC	Initial Calibration
IS	Internal Standard
LD	Lab Duplicate
MD	Matrix Spike Duplicate
MS	Matrix Spike
OT	Other (see DV worksheet)
PD	Pesticide Degradation
PS	Post Spike
RE	Re-extraction
SD	Serial Dilution
SS	Spiked Surrogate
TN	Tune

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## 4. Chain of Custody Synopsis

Chemical Analytical Methods					
Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010
Samples Collected on 21 May 1999					
001000N1	SO	0836	N	X	X <sup>1</sup>
001002N1	SO	0842	N	X	
002000N1	SO	0903	N	X	X <sup>1</sup>
002002N1	SO	0914	N	X	
003000N1	SO	0934	N	X	
003002N1	SO	0940	N	X	
004000N1	SO	0958	N	X	X <sup>1</sup>
004002N1	SO	1004	N	X	
005000N1	SO	1022	N	X	X <sup>1</sup>
005002N1	SO	1030	N	X	
006000N1	SO	1128	N	X	
006000FD1	SO	1128	FD	X	X <sup>1</sup>
006002N1	SO	1135	N	X	
006002FD1	SO	1135	FD	X	
007000N1	SO	1155	N	X	
007002N1	SO	1200	N	X	
008000N1	SO	1358	N	X	
008002N1	SO	1415	N	X	
009000N1	SO	1435	N	X	
009002N1	SO	1500	N	X	
010000N1	SO	1515	N	x	
010000FD1	SO	1515	FD	X	
010002N1	SO	1522	N	X	
011000N1	SO	1538	N	X	
011002N1	SO	1545	N	X	
012000N1	SO	1605	N	X	

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## Chemical Analytical Methods

Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010
012002N1	SO	1610	N	X	
SGRBHWQ012000EB1	WQ	1600	EB	X	
Samples Collected on 22 May 1999					
013000N1	SO	0820	N	X	
013002N1	SO	0830	N	X	
014000N1	SO	0845	N	X	
014002N1	SO	0850	N	X	
015000N1	SO	0922	N	X	
015002N1	SO	0930	N	X	
SGRBHWQ01500EB1	WQ	0900	EB	X	
Samples Collected on 24 June 1999					
016000N1	SO	1545	N	X <sup>2</sup>	X
017000N1	SO	1615	N	X <sup>2</sup>	X
018000N1	SO	1645	N	X <sup>2</sup>	X
018000MS1	SO	1645	FD	X <sup>2</sup>	X

Notes: X – Southwest Laboratory of Oklahoma

FD – Field Duplicate

EB - Equipment Blank

X<sup>1</sup> - Sample re-logged into the laboratory as SDG 39086.X<sup>2</sup> - Sample re-logged into the laboratory as SDG 39390.

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## 5. Sample Cross Reference Tables

### 5.1 Sample Cross Reference by Laboratory ID

Lab Sample ID	Sample ID	Sample Type
38707.01	SGRBHSO001000N1	N
38707.02	SGRBHSO001002N1	N
38707.03	SGRBHSO002000N1	N
38707.04	SGRBHSO002002N1	N
38707.05	SGRBHSO003000N1	N
38707.06	SGRBHSO003002N1	N
38707.07	SGRBHSO004000N1	N
38707.08	SGRBHSO004002N1	N
38707.09	SGRBHSO005000N1	N
38707.10	SGRBHSO005002N1	N
38707.11	SGRBHSO006000N1	N
38707.12	SGRBHSO006000FD1	FD
38707.13	SGRBHSO006002N1	N
38707.14	SGRBHSO006002FD1	FD
38707.15	SGRBHSO007000N1	N
38707.16	SGRBHSO007002N1	N
38707.17	SGRBHSO008000N1	N
38707.18	SGRBHSO008002N1	N
38707.19	SGRBHSO009000N1	N
38707.20	SGRBHSO010000N1	N
38707.21	MS from SGRBHSO010000N1	MS
38707.22	MSD from SGRBHSO010000N1	MSD
38708.01	SGRBHSO009002N1	N
38708.02	SGRBHSO010000FD1	FD
38708.03	SGRBHSO010002N1	N
38708.04	SGRBHSO011000N1	N
38708.05	SGRBHSO011002N1	N
38708.06	SGRBHWQ012000EB1	EB
38708.07	SGRBHSO012000N1	N

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Lab Sample ID	Sample ID	Sample Type
38708.08	SGRBHSO012002N1	N
38708.09	SGRBHSO013000N1	N
38708.10	SGRBHSO013002N1	N
38708.11	SGRBHSO014000N1	N
38708.12	SGRBHSO014002N1	N
38708.13	SGRBHWQ015000EB1	EB
38708.14	SGRBHSO015000N1	N
38708.15	SGRBHSO015002N1	N
39086.01	SGRBHSO002000N1	N
39086.02	SGRBHSO004000N1	N
39086.03	SGRBHSO005000N1	N
39086.04	SGRBHSO006000FD1	FD
39086.05	SGRBHSO001000N1	N
39177.01	SGRBHSO016000N1	N
39177.02	SGRBHSO017000N1	N
39177.03	SGRBHSO018000N1	N
39177.04	SGRBHSO018000MS1	FD
39390.01	SGRBHSO016000N1	N
39390.02	SGRBHSO017000N1	N
39390.03	SGRBHSO018000N1	N
39390.04	SGRBHSO018000MS1	N

Note: The laboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

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## 5.2 Sample Cross Reference by Sample ID

Sample ID	Lab Sample ID	Sample Type
SGRBHSEO001000N1	38707.01	N
SGRBHSEO001002N1	38707.02	N
SGRBHSEO002000N1	38707.03	N
SGRBHSEO002002N1	38707.04	N
SGRBHSEO003000N1	38707.05	N
SGRBHSEO003002N1	38707.06	N
SGRBHSEO004000N1	38707.07	N
SGRBHSEO004002N1	38707.08	N
SGRBHSEO005000N1	38707.09	N
SGRBHSEO005002N1	38707.10	N
SGRBHSEO006000N1	38707.11	N
SGRBHSEO006000FD1	38707.12	FD
SGRBHSEO006002N1	38707.13	N
SGRBHSEO006002FD1	38707.14	FD
SGRBHSEO007000N1	38707.15	N
SGRBHSEO007002N1	38707.16	N
SGRBHSEO008000N1	38707.17	N
SGRBHSEO008002N1	38707.18	N
SGRBHSEO009000N1	38707.19	N
SGRBHSEO010000N1	38707.20	N
MS from SGRBHSEO010000N1	38707.21	MS
MSD from SGRBHSEO010000N1	38707.22	MSD
SGRBHSEO009002N1	38708.01	N
SGRBHSEO010000FD1	38708.02	FD
SGRBHSEO010002N1	38708.03	N
SGRBHSEO011000N1	38708.04	N
SGRBHSEO011002N1	38708.05	N
SGRBHWQ012000EB1	38708.06	EB
SGRBHSEO012000N1	38708.07	N
SGRBHSEO012002N1	38708.08	N
SGRBHSEO013000N1	38708.09	N
SGRBHSEO013002N1	38708.10	N

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Sample ID	Lab Sample ID	Sample Type
SGRBHSO014000N1	38708.11	N
SGRBHSO014002N1	38708.12	N
SGRBHWQ015000EB1	38708.13	EB
SGRBHSO015000N1	38708.14	N
SGRBHSO015002N1	38708.15	N
SGRBHSO002000N1	39086.01	N
SGRBHSO004000N1	39086.02	N
SGRBHSO005000N1	39086.03	N
SGRBHSO006000FD1	39086.04	FD
SGRBHSO001000N1	39086.05	N
SGRBHSO016000N1	39177.01	N
SGRBHSO017000N1	39177.02	N
SGRBHSO018000N1	39177.03	N
SGRBHSO018000MS1	39177.04	FD
SGRBHSO016000N1	39390.01	N
SGRBHSO017000N1	39390.02	N
SGRBHSO018000N1	39390.03	N
SGRBHSO018000MS1	39390.04	N

Note: The laboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.



## 6. Laredo Air Force Base – Site Investigation - SGR Site

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### 6.1 Metals

Soil samples were collected and analyzed for Lead, following SW-846 methodology. In addition, selected samples were analyzed for lead after undergoing the Synthetic Precipitation Leaching Procedure (SPLP), SW-846 method 1312. The number of samples analyzed under this Laboratory Sample Delivery Group (SDG), are outlined in Section 4.0 of this report.

All initial and continuing calibration criteria were met.

ICP serial dilutions were carried out at the frequency of one per batch. All criteria were met, except as noted below:

- The serial dilution provided in SDG 38708 was reported at 12.6 percent deviation. The results for all associated samples in SDG 38708 were flagged "J", as estimated.

#### 6.1.1 Accuracy

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) and recoveries were within acceptable quality control limits.

#### 6.1.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

The laboratory sample duplicate values were within acceptable quality control limits.

Comparison of the detected parameters in the field and quality control duplicate samples reflected no reportable differences, except as noted below:

- The RPD for Field duplicates (SGRBHSO006000N1 and SGRBHSO006000FD1) was high at 78.4 percent. The results in these two samples have been flagged "J", as estimated.

### 6.1.3 Representativeness

The initial calibration blank, continuing calibration blank and laboratory method blank samples were reported free of contamination, except as noted below:

- Lead was detected in a continuing calibration blank at a concentration of 2.4 ug/L. No sample results were affected.

All samples were analyzed within the required 180-day holding time.

No dilutions were required in the analysis of these samples.

### 6.1.4 Comparability

Quality assurance samples were collected and the results provided to the USACE. The USACE will provide a supplemental review and comparison of the field and quality assurance results where applicable.

## 6.2 Technical Summary

A complete review of the laboratory data collected during the investigation of the Laredo AFB Site Investigation sampling event was performed. Upon completion, the following items were noted:

The chain-of-custody and field data forms were complete and contained the required information without any noted exceptions.

## 6.3 Completeness

All of the data have been qualified according to the findings in the sections listed above. In addition, the laboratory qualified detected concentrations below the reporting limit with "B" qualifiers. During data validation, the "B" qualifiers received from the laboratory were changed to "J" qualifiers. While some of the data validated for this sampling event were qualified as estimated (J), none of the data were rejected (where no valid result for parameter remains). The data is 100 percent complete, therefore the goal of 90 percent completeness has been met.

## 6.4 Conclusions

A review of the analytical data submitted regarding the May/June 1999 site investigation of the former Laredo AFB Shotgun Ranges by CH2M HILL has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered accurate, except in those cases where they have been qualified as discussed in the previous sections.

## 6.5 Laredo AFB, Texas, Lead Data Qualification Summary – SGR Site

SDG	Sample	Analyte	Reason	Flag	A or P
38707	SGRBHSO006000N1 SGRBHSO006000FD	Pb	Field Duplicate RPD	J	A
38708	ALL	Pb	Serial Dilution	J	A

## 7. Quality Assurance Summary Table

Quality Control/Quality Assurance Results Outside of Quality Control Limits					
Former Laredo Air Force Base Shotgun Ranges					
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
Lead / SDG 38707	SGRBHSO001000N1 SGRBHSO001002N1 SGRBHSO002000N1 SGRBHSO002002N1 SGRBHSO003000N1 SGRBHSO003002N1 SGRBHSO004000N1 SGRBHSO004002N1 SGRBHSO005000N1 SGRBHSO005002N1 SGRBHSO006000N1 SGRBHSO006000FD1 SGRBHSO006002N1 SGRBHSO006002FD1 SGRBHSO007000N1 SGRBHSO007002N1 SGRBHSO008000N1 SGRBHSO008002N1 SGRBHSO009000N1 SGRBHSO010000N1 MS from SGRBHSO010000N1 MSD from SGRBHSO010000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: 6000N1 / 6000FD1 = 10 / 22.9 RPD = 78.4 - Flag "J"	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
Lead / SDG 38708	SGRBHSO009002N1 SGRBHSO010000FD1 SGRBHSO010002N1 SGRBHSO011000N1 SGRBHSO011002N1 SGRBHSO012000EB1 SGRBHSO012000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: CCB - PB = 2.3 ug/L - no Flags	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: 12.6 %D - Flag "J"

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Quality Control/Quality Assurance Results Outside of Quality Control Limits					
Former Laredo Air Force Base Shotgun Ranges					
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
Lead / SPLP Lead SDG 39086	SGRBHSEO012002N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSEO013000N1				
	SGRBHSEO013002N1				
	SGRBHSEO014000N1				
	SGRBHSEO014002N1				
	SGRBHWQ015000EB1				
	SGRBHSEO015000N1				
Lead / SPLP Lead SDG 39177	SGRBHSEO015002N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSEO02000N1				
	SGRBHSEO04000N1				
	SGRBHSEO05000N1				
	SGRBHSEO06000FD1				
	SGRBHSEO01000N1				
	SGRBHSEO016000N1				
Lead / SDG 39390	SGRBHSEO017000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSEO018000N1				
	SGRBHSEO018000MS1				
	SGRBHSEO016000N1				
	SGRBHSEO017000N1				
	SGRBHSEO018000N1				
	SGRBHSEO018000MS1				

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## **Sample Analytical Results**

05041



Data Review and Validation for:

Metals and/or Cyanide LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	38707
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: <u>22 total</u>
Field QC Samples:	<u>11/12 + 13/14 - FDUP, 20/21/22 - NAT/MS/MSD</u>	
Reviewed by & Date:	<u>H. Kelly</u>	<u>4/13/2000</u>
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied
	14,	Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied
	COC	Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input checked="" type="checkbox"/> LCS only <input type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED

QC Item	Comments
<u>FDUP</u>	<u>11/12 = 10 122.9 RPD = 78.4</u>
	<u>Final "J" results in 11/12.</u>



Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.01  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments :

CLIENT ID: SGRBHS0001000N1

FORM I - IN

4/13/200  
05044

```

Lab Name: SOUTHWEST_LAB_OF_OK_____Contract: CH2M-OKC_____
Lab Code: SWOK_____Case No.: 38707_____SAS No.: _____SDG No.: 38707_____
Matrix (soil/water): SOIL_____Lab Sample ID: 38707.02_____
Level (low/med): LOW_____Date Received: 05/25/99_____
% Solids: 85.3_____

```

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN      Clarity Before:                 Texture: MEDIUM  
Color After: YELLOW      Clarity After: CLEAR      Artifacts:           

Comments :

CLIENT\_ID: SGRBHS0001002N1

FORM I - IN

HR 4113

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HSO002000N1

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.03  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_\_  
Color After: YELLOW\_\_\_\_\_

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts:

Comments :

CLIENT ID: SGRBHS0002000N1

FORM I - IN

05046

HSO002002N1

[illegible]

CLIENT\_ID: SGRBHS0002002N1

ALL 4/13

05047

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.05\_\_\_\_\_  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99\_\_\_\_\_  
% Solids: \_\_\_\_\_ 91.2\_\_\_\_\_

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0003000N1

AL 4/13  
05048



CLIENT SAMPLE ID

HSO004000N1

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0004000N1

At 4/13

05050

HS0004002N1

[illegible]

Comments:

FORM I - IN

05051

4/13



CLIENT SAMPLE ID

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.09  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99  
% Solids: 92.7

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0005000N1

NA 4/13  
05052

HS0005002N1

[illegible]

Comments :

CLIENT ID: SGRBHS0005002N1

4/13

05053

HS0006000N1

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Lab Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.11  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 86.6

[illegible]

J FD

Color Before: BROWN      Clarity Before:      Texture: MEDIUM  
Color After: YELLOW      Clarity After: CLEAR      Artifacts:

Comments :

CLIENT ID: SGRBHS0006000N1

FORM I - IN

05054

HS0006000FD

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0006000FD

FORM I - IN

05055

4/1/3

HSO006002N1

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID: SGRBHS0006002N1

HS0006002FD

[illegible]

CLIENT\_ID: \_SGRBHS0006002FD\_\_\_\_\_

4/13

05057



HSO007002N1

[illegible]

Comments:

CLIENT ID: SGRBHS0007002N1

FORM I - IN

05053

4/13



Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Lab Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.17  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 92.2

[illegible]

Color Before: BROWN  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT ID: SGRBHS0008000N1

4/13  
05060

HS0008002N1

[illegible]

Comments :

CLIENT ID: SGRBHS0008002N1

4/13

05061

CLIENT SAMPLE ID

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Lab Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.19  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 90.6

[illegible]

Color Before: BROWN      Clarity Before:                 Texture: MEDIUM  
Color After: YELLOW      Clarity After: CLEAR      Artifacts:           

Comments :

CLIENT ID: SGRBHS0009000N1

FORM I - IN

4/13  
05062

CLIENT SAMPLE ID

HS00010000N

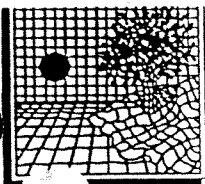
[illegible]

Comments:

CLIENT ID: SGRBHS00010000N

HK 4/13

05063



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

Hill

REPORT : 38707.05

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.05  
SAMPLE #: SGRBHS0003000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

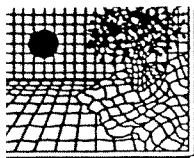
%MOISTURE: 8.8

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	8.6	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05064



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

12MHill

REPORT : 38707.10

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.10  
SAMPLE #: SGRBHS0005002N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

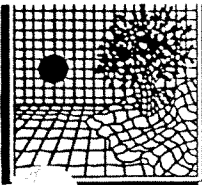
%MOISTURE: 10.7

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.9	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05065



# **SOUTHWEST LABORATORY OF OKLAHOMA, INC.**

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

LMHill

REPORT : 38707.17

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.17  
SAMPLE #: SGRBHSO008000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

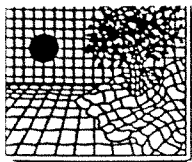
%MOISTURE: 7.8

## **MISCELLANEOUS**

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.8	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05066



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

H2MHill

REPORT : 38708.03

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38708.03  
SAMPLE # : SGRBHSO010002N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

%MOISTURE: 8.0

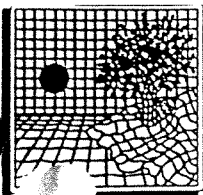
## MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.9	su		06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05067





# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

.2M Hill

REPORT : 38708.07

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38708.07  
SAMPLE #: SGRBHSO012000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

%MOISTURE: 6.0

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	8.1	su	06/05/99	SM 4500H/EPA 150.1

OUND\* = RESULTS REPORTED AS RECEIVED

05068



Data Review and Validation for: Metals and/or Cyanide LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	38708A
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B, 7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: <u>17 total</u>
Field QC Samples:	<u>2/3, 4/13, 2 - msl/msd 6/13 - CB</u>	
Reviewed by & Date:	<u>[Signature] 4/13/2000</u>	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	14,	Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	COC	Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blank wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> see blank wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <u>yes</u>	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

Serial Dilution - Flagged "E" by lab.

QC Item	Comments
<u>CCB</u>	<u>Lead detected in CCB at 2.3 ug/L. NO samples affected - NO FLAGS applied</u>
<u>SD</u>	<u>10 - 12.6 ug/L - Flag all results "I".</u>

CLIENT SAMPLE ID

HSO009002N1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0009002N1

FORM I - IN

ALL 4/13/2000

05071

HS0010000FD

[illegible]

CLIENT\_ID: SGRBHS0010000FD

DL 4/13

05072

HS0010002FD

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0010002FD

HS0011000N1

[illegible]

I 5D

CLIENT\_ID: SGRBHS0011000N1

AK  
4/13

HS0011002N1

```

Name: SOUTHWEST_LAB_OF_OK_____ Contract: CH2M-OKC____
Code: SWOK_____ Case No.: 38708 SAS No.: _____ SDG No.: 38708A
Matrix (soil/water): SOIL_____ Lab Sample ID: 38708.05
Level (low/med): LOW_____ Date Received: 05/25/99
% Solids: 88.1

```

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT ID: SGRBHS0011002N1

FORM I - IN

4/13

05075



HSO012000N1

[illegible]

CLIENT ID: SGRBHS0012000N1

4/13

05076

HS0012002N1

Contract: CH2M-OKC

SDG No.: 38708A

Lab Sample ID: 38708.08

Date Received: 05/25/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments:

CLIENT ID: SGRBHS0012002N1

FORM I - IN

05077

HS0013000N1

[illegible]

J SD

CLIENT ID: SGRBHS0013000N1

Ad  
4/13

05078

CLIENT SAMPLE ID

```

Name: SOUTHWEST_LAB_OF_OK_____ Contract: CH2M-OKC_____
Code: SWOK_____ Case No.: 38708 SAS No.: _____ SDG No.: 38708A
Matrix (soil/water): SOIL_____ Lab Sample ID: 38708.10
Level (low/med): LOW_____ Date Received: 05/25/99
% Solids: _____ 83.8

```

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0013002N1

4/13  
05079

HS0014002N1

[illegible]

T SD

Comments :

CLIENT ID: SGRBHS0014002N1

4/13

05080

CLIENT SAMPLE ID

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Code: SWOK Case No.: 38708 SAS No.: SDG No.: 38708A  
matrix (soil/water): SOIL Lab Sample ID: 38708.14  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 84.6

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0015000N1

4/13  
05081

HS0015002N1

[illegible]

Comments:

CLIENT ID: SGRBHS0015002N1

05082

4/13

CLIENT SAMPLE ID

SGRBHWQ01200

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLEIENTS ID= SGRBHWQ012000EB

FORM I - IN

05083



SGRBHWQ01500

[illegible]

EB

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLEIENTS\_ID=\_SGRBHWQ015000EB

FORM I - IN

05084

AK  
4/13



Data Review and Validation for:

Metals and/or Cyanide

TOTAL 4 SPLP

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39086
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: 5
Field QC Samples:		
Reviewed by & Date:	H. K. L.	4/13/2009
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14 raw	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	2	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
		ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS  
 (NOTE: samples previously logged in & analyzed as 50639707)

QC Item

Comments

NO FLAGS APPLIED.

(CHANGED "B" Qualifiers from lab → "J")

2/14/13/2000

1  
INORGANIC ANALYSES DATA SHEET

SGRBHS000400

Lab Name: SOUTHWEST_LAB_OF_OK_____	Contract: CH2M-OKC_____	SGRBHS000400
Lab Code: SWOK_____	Case No.: 39086	SAS No.: _____
Matrix (soil/water): SOIL_____	SDG No.: 39086	Lab Sample ID: 39086.02
Level (low/med): LOW_____	Date Received: 06/21/99	
Solids: 91.9		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN                      Clarity Before:                                 Texture: MEDIUM  
Color After: COLORLESS                      Clarity After:                                 Artifacts:           

CLIENT ID:=SGRBHS0004000N1

FORM I - IN

05088

1

CLIENT SAMPLE ID

Date Received: 06/21/99

05089

## INORGANIC ANALYSES DATA SHEET

SGRBHS000600

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Comments:

CLIENT ID:=SGRBHS0006000FD

FORM I - IN

05090

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

SGRBHS000100

Lab Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 39086 SAS No.: \_\_\_\_\_ SDG No.: 39086\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 39086.05\_\_\_\_\_  
Level (low/med): LOW\_\_\_\_\_ Date Received: 06/21/99\_\_\_\_\_  
% Solids: 89.4\_\_\_\_\_

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_  
Color After: COLORLESS

Clarity Before: \_\_\_\_\_  
Clarity After: \_\_\_\_\_

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments :

CLIENT ID:=SGRBHS0001000N1

FORM I - IN

05091



1  
INORGANIC ANALYSES DATA SHEET

002000N1

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

J

IB

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT ID=SGRBHS0002000N1

FORM I - IN

05092

4/13

1  
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

004000N1

```

Name: SOUTHWEST_LAB_OF_OK_____ Contract: CH2M-OKC_____
Code: SWOK_____ Case No.: 39086_____ SAS No.: _____ SDG No.: 39086_____
rix (soil/water): WATER_____ Lab Sample ID: 39086.02_____
rel (low/med): LOW_____ Date Received: 06/21/99_____
solids: _____ 0.0_____

```

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

```
Color Before:  COLORLESS
Color After:   COLORLESS
```

Clarity Before: CLEAR\_  
Clarity After: CLEAR\_

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

Comments:

CLIENT ID=SGRBHS0004000N1

FORM I - IN

05093

1

INORGANIC ANALYSES DATA SHEET

005000N1

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT ID=SGRBHS0005000N1

FORM I - IN

05094

4/13

1  
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

006000FD

```

Name: SOUTHWEST_LAB_OF_OK Contract: CH2M-OKC
Code: SWOK Case No.: 39086 SAS No.: SDG No.: 39086
rix (soil/water): WATER Lab Sample ID: 39086.04
rel (low/med): LOW Date Received: 06/21/99
solids: 0.0

```

Concentration Units (ug/L or mg/kg dry weight): UG/L\_

[illegible]

```
lor Before:  COLORLESS
lor After:   COLORLESS
```

Clarity Before: CLEAR\_  
Clarity After: CLEAR\_

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

ments:

CLIENT ID=SGRBHS0006000FD

FORM I - IN

35095

1

INORGANIC ANALYSES DATA SHEET

001000N1

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT ID=SGRBHS0001000N1

05096



Data Review and Validation for:

TOTAL &amp; SPLD

Metals and/or Cyanide

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39177
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: <u>6 total</u>
Field QC Samples:	<u>1 - msl/msd</u>	
Reviewed by & Date:	<u>H. Kelly</u> <u>4/13/2000</u>	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied
	14,	Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied
	COC	Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blk wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blk wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <u>N/A</u>	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED  
(NOTE: sample #5 put on hold)

QC Item

Comments

D PKG/COC 18000 FD1 put on hold - NOT analyzed  
(changed "8" quantity from lab -> "5")  
NO FLAGS APPLIED.

## 1

016000N1

SDG No.: 39177

Lab Sample ID: 39177.01

Date Received: 06/26/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments :

CLIENT\_ID:\_SGRBHS0016000N1

FORM I - IN

NA 4/13/2000

05093





1

018000N1

Lab Name: SOUTHWEST LAB OF OK

Contract : CH2M-OKC

Code: SWOK

Case No. : 39177

SAS No.:

SDG No. : 39177

ix (soil/water): SOIL

Lab Sample ID: 39177 03

Level (low/med) : LOW

Date Received: 06/26/99

☞ Solids: 85.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments:

CLIENT ID: SGRBHS0018000N1

FORM I - IN

4/13  
05101



CLIENT SAMPLE ID

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-UT  
Lab Code: SWOK Case No.: 39177 SAS No.: SDG No.: 39177B  
Matrix (soil/water): WATER Lab Sample ID: 39177.02  
Level (low/med): LOW Date Received: 06/26/99  
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT\_ID=\_SGRBHS0017000N1

4/13  
05103





Data Review and Validation for:

Metals and/or Cyanide Urea Only

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39390
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B, 7000 Series) <input type="checkbox"/> Hq 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: <u>43</u>
Field QC Samples:		
Reviewed by & Date:	<u>A. Kelly</u>	<u>4/13/2000</u>
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	14,	Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	COC	Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input checked="" type="checkbox"/> None*	<input type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input type="checkbox"/> Meth	<input type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED  
(NOTE: Sample #5 - put on Hold)

QC Item

Comments

NO FLAGS APPLIED  
(CHANGED "B" Qualifiers from Lab -> "I")

003

CLIENT SAMPLE ID

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Lab Code: SWOK Case No.: 39390 SAS No.: SDG No.: 39390  
Matrix (soil/water): SOIL Lab Sample ID: 39390.01  
Level (low/med): LOW Date Received: 07/13/99  
% Solids: 84.5

[illegible]

Comments :

CLIENT ID =SGRBHS0016000NI

FORM I - IN

4/13/2002  
05107



CLIENT SAMPLE ID

017000N1

SDG No.: 39390

Lab Sample ID: 39390.02  
Date Received: 07/13/99

[illegible]

J CS  
2/2/2000

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT\_ID\_=SGRBHS0017000N1

FORM I - IN

4/13

05108

1  
INORGANIC ANALYSES DATA SHEET

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Lab Code: SWOK Case No.: 39390 SAS No.: SDG No.: 39390  
Matrix (soil/water): SOIL Lab Sample ID: 39390.03  
Level (low/med): LOW Date Received: 07/13/99  
% Solids: 85.0

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID =SGRBHS0018000N1

65109

# **USACE Data Comparability Report**

05110

9 May 2000

Memorandum For     Greg Williams, CESWT-EC-EF  
                             Carol Wies, CESWT-EC-EF

SUBJECT: Site Inspection Report, Shotgun Range Site, Former Laredo Air Force Base;  
Data Validation Review (April 2000).

1. A review of the CH2MHILL's Data Validation Report for the Shotgun Range Site located at the Former Laredo Air Force Base, Laredo, Texas has been completed.
2. Between 21-24 May 1999, fifteen shallow subsurface soil borings were hand augered to a depth of two feet below ground level. From these locations approximately thirty soil samples were collected in addition to three field duplicate samples and two equipment blanks. On 24 June, three additional subsurface soil samples and one field duplicate were collected for confirmation purposes. Three soil samples were collected during 21-24 May for quality assurance requirements.
3. All field and field duplicate samples were to be analyzed for total lead by SW846 method 6010. Additionally, soil samples exhibiting elevated concentrations of lead were reanalyzed for total lead by the synthetic precipitation leachate procedure (SPLP). Five soil samples were analyzed by SPLP.
4. The majority of soil and field duplicate samples were shipped to Southwest Laboratory of Oklahoma (SWLO) located in Broken Arrow, Oklahoma. The three quality assurance samples were shipped to Environmental Testing and Consulting Inc (ETC), located in Memphis, Tennessee.
5. A comparison of the field and field duplicate results has been tabulated and attached. A review of the data indicates that the field and field duplicate results are generally consistent. In general, the primary laboratory's reporting limits are slightly lower than the limits reported by the quality assurance laboratory.
6. A review of the primary laboratory and its data indicate no significant problems regarding matrix spike recoveries, laboratory spike recoveries, and laboratory blank contamination. CH2MHILL's data review noted the presence of lead in a continuing calibration blank, but that it did not effect any samples. A review of the quality assurance data noted some problems with the results reported by ETC. Lead recoveries for the matrix spike and duplicate and relative percent difference fell outside quality control limits. The post digestion spike was also reported to have failed. ETC reported all lead results were based on the Method of Standard Additions. An additional review of the data is underway to evaluate these problems. The quality assurance data should be considered estimated until these problems can be resolved.

05111

7. A review of the analytical data submittal and data validation report regarding the May and June 1999 Site Investigation of the Shotgun Range at the Former Laredo AFB has been completed. An evaluation of the data indicates that the sample handling, shipment, and analytical procedures appear to have been adequately completed and that the analytical results should be considered accurate except in those cases where they have been qualified as estimated within this report. In particular, the lead quality assurance results should be considered as estimated until all issues have been resolved.

Christopher Kennedy,  
Senior Chemist

**Former Laredo Air Force Base  
Shotgun Range (SG) Site Investigation**

<b>Sample ID</b>	SGRBHSO006000N1 (Field)	SGRBHSO006000FD1 (QC Duplicate)	SGRBHSO006000FD2 (QA Duplicate)
<b>Lab ID</b>	38707.11	38707.12	9905603-05
<b>Sample Date</b>	05/21/1999	05/21/1999	05/21/1999

<b>Parameter</b>	<b>Method</b>	<b>Analyte</b>	<b>Units</b>			
	6010B	Lead	mg/kg	10 J	22.9 J	<25.0

Notes

Former Laredo Air Force Base  
Shotgun Range (SG) Site Investigation

Sample ID	SGRBHSO010000N1 (Field)	SGRBHSO010000FD1 (QC Duplicate)	SGRBHSO010000FD2 (QA Duplicate)
Lab ID	38707.2	38708.02	9905603-04
Sample Date	05/21/1999	05/21/1999	05/21/1999

Parameter	Method	Analyte	Units			
	6010B	Lead	mg/kg	3.8	3.8 J	<25.0

Notes

Former Laredo Air Force Base  
Shotgun Range (SG) Site Investigation

Sample ID	SGRBHSO06002N1 (Field)	SGRBHSO06002FD1 (QC Duplicate)	SGRBHSO06002FD2 (QA Duplicate)
Lab ID	38707.13	38707.14	9905603-03
Sample Date	05/21/1999	05/21/1999	05/21/1999

Parameter	Method	Analyte	Units			
	6010B	Lead	mg/kg	8.3	7.2	<25.0

Notes





Central TX Region

8101 Cameron Rd #306 – Austin, TX 78754

512/821-0045 FAX 512/821-0237

Report Date: 06/11/1999

Page 1 of 20

Project Report: 102380

Client: EET1

EET, Inc  
PO Box 1890  
Manchaca, TX 78652-1890  
Attention: A. Harasimowitz

## Results for Project 102380

## 09349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999 By: Client Rec: 05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
Flash Point (Reg. Limit 140.0 F)	>200	Degrees F		EPA Method 1010	05/28/1999 1515	PRE	
Total Petroleum Hydrocarbon	39	mg/L	1	EPA Method 418.1	06/09/1999 1730	GDG	
CLP Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6010B	06/08/1999 1139	WOB	7440-22-4
CLP Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300	WOB	7440-38-2
CLP Barium (Reg. Limit 100.0)	0.242	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
CLP Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
CLP Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
CLP Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
CLP Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
Reactivity Cyanide (RL 250)	ND	mg/kg	4.0	EPA Method 7.3.3	05/28/1999 1500	RSV	
CLP Mercury (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/02/1999 1412	WOB	7439-97-6
CLP alpha-BHC (Lindane) RL	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	58-89-9
CLP Chlordane (Reg. Limit 0.03)	ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0546	KLB	57-74-9
CLP Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-20-8
CLP Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	76-44-8
CLP Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	1024-57-3
CLP Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0546	KLB	72-43-5
CLP Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0546	KLB	8001-35-2
CLP 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1642	KLB	94-75-7
CLP 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1642	KLB	93-72-1
CLP 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	107-06-2
CLP 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	75-34-3
CLP Benzene (Reg. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	71-43-2
CLP Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	56-23-5
CLP Chlorobenzene (Limit 100)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	108-90-7
CLP Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	67-66-3
CLP MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0010	KLB	78-93-3
CLP Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	127-18-4
CLP Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0010	KLB	79-01-6
CLP Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0010	KLB	75-01-4
CLP 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	106-46-7
CLP 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	121-14-2
CLP Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	67-72-1
CLP Hexachlorobenzene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	118-74-1
CLP 1,2-Dichlorobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	87-68-3
CLP 1,2-Dichlorobenzene (Limit 2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	98-95-3
CLP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1519	KLB	87-86-5



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## Central TX Region

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Project Report: 102380

Client: EET1

### Results for Project 102380

#### 3349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
P Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	110-86-1
P Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	1319-77-3
P 2,4,6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	88-06-2
P 2,4,5-Trichlorophenol (400)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1519	KLB	95-95-4
oratory pH	7.4	SU		EPA Method 9040A	05/28/1999 1630	PRE	
ctivity Sulfide (RL 500)	ND	mg/kg	10	SW-846 7.3.4	05/28/1999 1000	RSV	

#### 1350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
P Petroleum Hydrocarbon	58	mg/kg	10	EPA Method 418.1	06/03/1999 1130	GDG	
P Arsenic (Reg. Limit 5.0)	ND	mg/L	0.500	EPA Method 6020	06/02/1999 1300	WOB	7440-38-2
P Barium (Reg. Limit 100.0)	0.264	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-39-3
P Cadmium (Reg. Limit 1.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-43-9
P Chromium (Reg. Limit 5.0)	ND	mg/L	0.100	EPA Method 6020	06/02/1999 1300	WOB	7440-47-3
P Lead (Reg. Limit 5.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7439-92-1
P Selenium (Reg. Limit 1.0)	ND	mg/L	0.250	EPA Method 6020	06/02/1999 1300	WOB	7782-49-2
P Silver (Reg. Limit 5.0)	ND	mg/L	0.0500	EPA Method 6020	06/02/1999 1300	WOB	7440-22-4
P Mercury (Reg. Limit 0.2)	ND	mg/L	0.0015	EPA Method 7470A	06/01/1999 1431	WOB	7439-97-6
P Gamma-BHC (Lindane) RL	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	58-89-9
P Chlordane (Reg. Limit 0.03)	ND	mg/L	0.005	EPA Method 8081A	06/03/1999 0449	KLB	57-74-9
P Endrin (Reg. Limit 0.02)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-20-8
P Heptachlor (Limit .008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	76-44-8
P Heptachlor Epoxide (.008)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	1024-57-3
P Methoxychlor (RL 10)	ND	mg/L	0.001	EPA Method 8081A	06/03/1999 0449	KLB	72-43-5
P Toxaphene (Reg. Limit 0.5)	ND	mg/L	0.05	EPA Method 8081A	06/03/1999 0449	KLB	8001-35-2
P 2,4 D (Reg. Limit 10)	ND	mg/L	2.5	EPA Method 8150-TCLP	06/02/1999 1716	KLB	94-75-7
P 2,4,5-TP (Silvex) (RL 1)	ND	mg/L	0.25	EPA Method 8150-TCLP	06/02/1999 1716	KLB	93-72-1
P 1,2-Dichloroethane (RL .5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	107-06-2
P 1,1-Dichloroethene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	75-34-3
P Benzene (Reg. Limit 0.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	71-43-2
P Carbon Tetrachloride (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	56-23-5
P Chlorobenzene (Limit 100)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	108-90-7
P Chloroform (Reg. Limit 6.0)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	67-66-3
P MEK (Reg. Limit 200)	ND	mg/L	2.00	EPA Method 8260B	06/03/1999 0105	KLB	78-93-3
P Tetrachloroethylene (.7)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	127-18-4
P Trichloroethylene (.5)	ND	mg/L	0.1	EPA Method 8260B	06/03/1999 0105	KLB	79-01-6
P Vinyl Chloride (.4)	ND	mg/L	0.2	EPA Method 8260B	06/03/1999 0105	KLB	75-01-4
P 1,4-Dichlorobenzene	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	106-46-7
P 2,4-Dinitrotoluene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	121-14-2
P Hexachlorethane (Limit 3)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	67-72-1

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Results for Project 102380

09350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	MAL	Method	Analyzed	By	CAS
CLP Hexachlorobenzene (.13)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	118-74-1
CLP Hexachlorobutadiene (.5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	87-68-3
CLP Nitrobenzene (Limit 2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	98-95-3
CLP Pentachlorophenol (100)	ND	mg/L	0.5	EPA Method 8270C	06/04/1999 1641	KLB	87-86-5
CLP Pyridine (Reg. Limit 5)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	110-86-1
CLP Total Cresols (Reg Lim	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	1319-77-3
CLP 2,4,6-Trichlorophenol (2)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	88-06-2
CLP 2,4,5-Trichlorophenol (400)	ND	mg/L	0.1	EPA Method 8270C	06/04/1999 1641	KLB	95-95-4

Sample Preparation Steps for Project 102380

09349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	Method	Analyzed	By
Initial Temperature on Receipt	4	Degrees C		05/26/1999 1318	AAJ
Final Temperature on Receipt	4	Degrees C		05/26/1999 1318	AAJ
CLP Volatile Extraction	1.5% SOLID		EPA Method 1311	05/28/1999 1540	GPJ
CLP Extraction: Non-Volatile	AQU/SOL EXT		EPA Method 1311	05/27/1999 1705	GPJ
Initial Digestion TCLP 3010	50/10 A/S/S	mL/mL	EPA Method 3010A	06/02/1999 0830	PJD
CLP Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
CLP Liquid-Liquid Extraction	1/100 S	mL/mL	EPA Method 3510	06/03/1999 0700	LMB
Microcarbon Liquid Extraction	100/380	mL/mL	EPA Method 3510 *MOD	06/03/1999 1450	MAM
Initial Digestion - TCLP 7470	150/10 A/S	mL/mL	EPA Method 7470A	06/01/1999 0900	WBM
Final Digestion - TCLP 7470	150/10 A/S	mL/mL	EPA Method 7470A	06/02/1999 0900	WBM
CLP TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999 0546	KLB
Trifluoromethylation of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999 0900	LMB
CLP TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999 1642	KLB
CLP TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999 0010	KLB
CLP TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999 1519	KLB
Send This Report AS Soon As	FAXED		FAX	06/10/1999 16:29	KEK
Initial Activity Distillation	100/10 A/B	mL/g	SW 846 7.3.3	05/26/1999 1700	HAM

09350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec:05/26/1999

Parameter	Result	Unit	Method	Analyzed	By
Initial Temperature on Receipt	4	Degrees C		05/26/1999 1318	AAJ
CLP ZHE Volatile Extraction	100.0% SOLID		EPA Method 1311	05/28/1999 1540	GPJ
CLP Extraction: Non-Volatile	SOL EXT #1		EPA Method 1311	05/27/1999 1705	GPJ
Initial Digestion TCLP 3010	50/10 A/S/S	mL/mL	EPA Method 3010A	06/02/1999 0830	PJD
CLP Liq-Liq Extr. W/Hex Exch.	10/200 S	mL/mL	EPA Method 3510	06/01/1999 0900	LMB
CLP Liquid-Liquid Extraction	1/100 S	mL/mL	EPA Method 3510	06/03/1999 0700	LMB
Initial Sonication Extract.	100/30	mL/g	EPA Method 3550B	06/02/1999 1130	LMB
Final Digestion - TCLP 7470	150/10 A/S/S	mL/mL	EPA Method 7470A	06/01/1999 0900	WBM



## Sample Preparation Steps for Project 102380

## 1350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999

By: Client

Rec:05/26/1999

Parameter	Result	Unit	Method	Analyzed	By
TCLP Pesticide	Verified		EPA Method 8081A	06/03/1999 0449	KLB
Dilution of TCLP Extract	10/1 S	mL/mL	EPA Method 8151A	05/29/1999 0900	LMB
TCLP Herbicide	Verified		EPA Method 8151A	06/02/1999 1716	KLB
TCLP Volatile Analysis	Verified		EPA Method 8260B	06/03/1999 0105	KLB
TCLP Semi-Volatile Analysis	Verified		EPA Method 8270C	06/04/1999 1641	KLB
This Report AS Soon As	FAXED		FAX	06/07/1999 16:53	KEK

## Sample Specific Quality Control/Quality Assurance

## 1349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999

By: Client

Rec:05/26/1999

Method	Surrogate/Spike on Sample	409349	06/02/1999	2
Compound	Result	Concentration	%Recovery	
monofluoromethane	42.1	40.0	110	
o-xylene-d8	40.9	40.0	100	
monofluorobenzene-SURR	41.3	40.0	100	

Method	Matrix Spike on Sample	409349	06/02/1999	2
Compound	Recovery (%)	Concentration		
P Benzene (Reg. Limit 0.5)	110	50.0		
P Carbon Tetrachloride (.5)	122	50.0		
P Chlorobenzene (Limit 100)	111	50.0		
P Chloroform (Reg. Limit 6.0)	112	50.0		
P 1,2-Dichloroethane (RL .5)	121	50.0		
P 1,1-Dichloroethene (.7)	106	50.0		
P Tetrachloroethylene (.7)	111	50.0		
P Trichloroethylene (.5)	115	50.0		
P Vinyl Chloride (.4)	96.0	50.0		
P MEK (Reg. Limit 200)	85.8	50.0		

Method	Internal Standard Areas on Sample	409349	06/02/1999	2
Compound	IS Area	CCC IS Area	Status	
monofluorobenzene-ISTD	168800	174400		
-difluorobenzene-ISTD	244800	252800		
chlorobenzene-d5-ISTD	204300	214400		
-dichlorobenzene-d4-ISTD	91360	96680		

Method	Surrogate/Spike on Sample	409349	06/04/1999	1
Compound	Result	Concentration	%Recovery	
2,4,6-Tribromophenol	91.4	100	91	
fluorophenol-SURR	50.4	100	50	
phenol-d6-SURR	34.1	100	34	
chlorobenzene-d5-SURR	35.1	50.0	70	
fluorobiphenyl-SURR	35.7	50.0	71	





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Project Report: 102380

Client: EET1

## Sample Specific Quality Control/Quality Assurance

409349 Purge/Decon Water Former Laredo AFB

Liquid Aqueous Taken: 05/20/1999

By: Client

Rec:05/26/1999

4-Terphenyl-d14-SURR 57.2 50.0 110

EPA Method 8260B Matrix Spike on Sample 409349 06/04/1999 1

Compound	Recovery (%)	Concentration
CLP Bis(2-chloroethyl) ether	84.5	100
CLP 1,4-Dichlorobenzene	68.4	100
CLP 2,4-Dinitrotoluene (.13)	83.7	100
CLP Hexachlorobenzene (.13)	88.8	100
CLP Hexachlorobutadiene (.5)	71.6	100
CLP Hexachlorethane (Limit 3)	73.2	100
CLP Nitrobenzene (Limit 2)	86.4	100
CLP Pentachlorophenol (100)	63.7	100
CLP 2,4,6-Trichlorophenol (2)	69.7	100
CLP 2,4,5-Trichlorophenol (400)	71.0	100
CLP Total Cresols (Reg Lim 200)	58.3	300
CLP dione (Reg. Limit 5)	68.1	100

EPA Method 8270C Internal Standard Areas on Sample 409349 06/04/1999 1

Compound	IS Area	CCC IS Area	Status
1,4-Dichlorobenzene-d4-ISTD	232000	238300	
1-naphthalene-d8-ISTD	885700	880200	
1-acenaphthene-d10-ISTD	478400	473900	
1-benzanthrene-d10-ISTD	682300	683700	
1-brysene-d12-ISTD	371300	447900	
1-erylene-d12-ISTD	277400	331000	

GC Surr.) Surrogate/Spike on Sample 409349 06/02/1999 1

Compound	Result	Concentration	%Recovery
1,4-Dichlorophenylacetic Acid	122	100	120

GC Surr.) Matrix Spike on Sample 409349 06/02/1999 1

Compound	Recovery (%)	Concentration
1,4,5-TP (Silvex)	102	100
1,4 Dichlorophenoxyacetic acid	119	100

C Surrogate/Spike on Sample 409349 06/02/1999 1

Compound	Result	Concentration	%Recovery
1-butylchloredate (GC Surr)	56.2	100	56
1-etrachloro-m-Xylene (GC Surr.)	54.8	100	55

C Matrix Spike on Sample 409349 06/02/1999 1

Compound	Recovery (%)	Concentration
1-am (Lindane)	67.2	100
1-nc	89.5	100
1-ptachlor	61.9	100

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Project Report: 102380

Client: EET1

## Sample Specific Quality Control/Quality Assurance

9349 Purge/Decon Water Former Laredo AFB Liquid Aqueous Taken: 05/20/1999 By: Client Rec: 05/26/1999

achlor epoxide	72.9	100
hoxychlor	75.0	100

9350 Soil Cuttings Former Laredo AFB Solid Taken: 05/20/1999 By: Client Rec: 05/26/1999

Method 8260B Surrogate/Spike on Sample 409350 06/02/1999 2

pound	Result	Concentration	%Recovery
romofluoromethane	42.6	40.0	110
uene-d8	41.0	40.0	100
mo fluorobenzene-SURR	42.4	40.0	110

Method 8260B Matrix Spike on Sample 409350 06/02/1999 2

pound	Recovery (%)	Concentration
P Benzene (Reg. Limit 0.5)	112	50.0
P Carbon Tetrachloride (.5)	123	50.0
P Chlorobenzene (Limit 100)	113	50.0
P Chloroform (Reg. Limit 6.0)	116	50.0
P 1,2-Dichloroethane (RL .5)	124	50.0
P 1,1-Dichloroethene (.7)	110	50.0
P Tetrachloroethylene (.7)	109	50.0
P Trichloroethylene (.5)	113	50.0
P Vinyl Chloride (.4)	97.8	50.0
P MEK (Reg. Limit 200)	94.8	50.0

Method 8260B Internal Standard Areas on Sample 409350 06/02/1999 2

pound	IS Area	CCC IS Area	Status
afluorobenzene-ISTD	166500	174400	
-Difluorobenzene-ISTD	239000	252800	
obenzene-d5-ISTD	203600	214400	
-Dichlorobenzene-d4-ISTD	89460	96680	

Method 8270C Surrogate/Spike on Sample 409350 06/04/1999 1

pound	Result	Concentration	%Recovery
6-Tribromophenol	80.8	100	81
uorophenol-SURR	49.7	100	50
ol-d6-SURR	33.4	100	33
obenzene-d5-SURR	33.3	50.0	67
uorobiphenyl-SURR	31.5	50.0	63
rphenyl-d14-SURR	57.9	50.0	120

Method 8260B Matrix Spike on Sample 409350 06/04/1999 1

pound	Recovery (%)	Concentration
Bis(2-chloroethyl) ether	82.5	100
1,4-Dichlorobenzene	60.2	100
2,4-Dinitrotoluene (.13)	81.7	100

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### Sample Specific Quality Control/Quality Assurance

#### 409350 Soil Cuttings Former Laredo AFB

Solid Taken: 05/20/1999 By: Client Rec: 05/26/1999

TCLP Hexachlorobenzene (.13)	88.1	100
TCLP Hexachlorobutadiene (.5)	59.1	100
TCLP Hexachlorethane (Limit 3)	64.2	100
TCLP Nitrobenzene (Limit 2)	83.8	100
TCLP Pentachlorophenol (100)	63.4	100
TCLP 2,4,6-Trichlorophenol (2)	67.5	100
TCLP 2,4,5-Trichlorophenol (400)	69.8	100
TCLP Total Cresols (Reg Lim 200)	62.0	300
TCLP Pyridine (Reg. Limit 5)	50.0	100

EPA Method 8270C Internal Standard Areas on Sample 409350 06/04/1999 1

Compound	IS Area	CCC IS Area	Status
1,4-Dichlorobenzene-d4-ISTD	235900	238300	
Naphthalene-d8-ISTD	903500	880200	
Acenaphthene-d10-ISTD	473200	473900	
Phenanthrene-d10-ISTD	666200	683700	
Chrysene-d12-ISTD	352300	447900	
Perylene-d12-ISTD	261200	331000	

(GC Surr.) Surrogate/Spike on Sample 409350 06/02/1999 1

Compound	Result	Concentration	%Recovery
1,4-Dichlorophenylacetic Acid	117	100	120

GC Surr.) Matrix Spike on Sample 409350 06/02/1999 1

Compound	Recovery (%)	Concentration
2,4,5-TP (Silvex)	94.4	100
1,4 Dichlorophenoxyacetic acid	109	100

C Surrogate/Spike on Sample 409350 06/02/1999 1

Compound	Result	Concentration	%Recovery
tributylchloroendate (GC Surr.)	81.2	100	81
etrachloro-m-Xylene (GC Surr.)	81.3	100	81

C Matrix Spike on Sample 409350 06/02/1999 1

Compound	Recovery (%)	Concentration
gamma-BHC (Lindane)	97.5	100
drin	125	100
ptachlor	93.1	100
ptachlor epoxide	100	100
thoxychlor	138	100

### Organic Quality Control/Quality Assurance for Project 102380

05005



## Organic Quality Control/Quality Assurance for Project 102380

Method 8260B Blank 06/02/1999 2

Compound	Result
benzene	ND
monobromobenzene	ND
1,2-Dichloroethylene	ND
ethylene Chloride	ND
toluene	ND
1,1-dichloroethylene	ND

Method 8260B Instrument Tune 06/02/1999 2

Mass	Reference Mass	Min Abundance	Max Abundance	Result	Status
Mass 50	95	15.0	40.0	20.2	PASS
Mass 75	95	30.0	60.0	47.8	PASS
Mass 95	95	100	100	100.0	PASS
Mass 96	95	5.00	9.00	6.3	PASS
Mass 173	174	0	2.00	0.0	PASS
Mass 174	95	50.0	100	70.9	PASS
Mass 175	174	5.00	9.00	8.6	PASS
Mass 176	174	95.0	101	97.9	PASS
Mass 177	176	5.00	9.00	6.6	PASS

Instrument Calibration Check 06/02/1999 2

Compound	Max %Rel. Std.	%Deviation	Status
monobromobenzene	20.0	-9.8	PASS
1,2-Dichloroethylene	20.0	-4.7	PASS
1,2-Dichloropropane	20.0	-9.5	PASS
toluene	20.0	-12.5	PASS
benzene	20.0	-7.5	PASS
ethylene Chloride	20.0	9.8	PASS

Method 8260B Instrument System Performance Check 06/02/1999 2

Compound	Min Response Factor	Response Factor	Status
monobromobenzene	.1010	0.279	PASS
monobromobenzene	.3000	1.217	PASS
monobromomethane (Methyl Chloride)	.1000	0.555	PASS
1,2-Dichloroethane	.1000	1.105	PASS
1,2,2,2-Tetrachloroethane	.3000	1.596	PASS

Method 8260B Matrix Spike/Duplicate on Sample 409602 06/02/1999 2

Compound	First (%)	Second (%)	%Difference
benzene	109	111	1.8
monobromobenzene	113	115	1.8
1,2-Dichloroethylene	107	109	1.9
benzene	110	112	1.8
1,1-dichloroethylene	110	113	2.7







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## Organic Quality Control/Quality Assurance for Project 102380

DPA Method 9270C	Instrument Tune	06/04/1999	1		
Mass	Reference Mass	Min Abundance	Max Abundance	Result	Status
DETPP Mass 51	198	30.0	60.0	59.1	PASS
DETPP Mass 68	69	0	2.00	0.0	PASS
DETPP Mass 69	198	0	100	62.8	PASS
DETPP Mass 70	69	0	2.00	0.0	PASS
DETPP Mass 127	198	40.0	60.0	51.2	PASS
DETPP Mass 197	198	0	1.00	0.0	PASS
DETPP Mass 198	198	100	100	100.0	PASS
DETPP Mass 199	198	5.00	9.00	6.9	PASS
DETPP Mass 275	198	10.0	30.0	21.3	PASS
DETPP Mass 365	198	1.00	100	2.9	PASS
DETPP Mass 441	443	0	100	81.5	PASS
DETPP Mass 442	198	40.0	100	59.7	PASS
DETPP Mass 443	442	17.0	23.0	19.2	PASS

Instrument Calibration Check	06/04/1999	1		
Compound	Max %Rel. Std.	%Deviation	Status	
benzene	30.0	-4.2	PASS	
benzo(a)pyrene	30.0	-3.0	PASS	
2-Chloro-3-methylphenol	30.0	-8.0	PASS	
1,4-Dichlorobenzene	30.0	-2.7	PASS	
1,4-Dichlorophenol	30.0	-3.9	PASS	
1-n-octylphthalate	30.0	-17.0	PASS	
fluoranthene	30.0	3.6	PASS	
hexachlorobutadiene	30.0	-21.0	PASS	
2-Nitrophenol	30.0	-0.8	PASS	
2-Nitrosodiphenylamine (as DPA)	30.0	-7.7	PASS	
2,4-dichlorophenol	30.0	0.2	PASS	
phenol	30.0	0.4	PASS	
1,4,6-Trichlorophenol	30.0	-2.4	PASS	

PA Method 8270C	Instrument System Performance Check	06/04/1999	1	
Compound	Min Response Factor	Response Factor	Status	
1,4-Dinitrophenol	.0500	0.114	PASS	
hexachlorocyclopentadiene	.0500	0.269	PASS	
2-Nitrophenol	.0500	0.282	PASS	
2-Nitrosodi-n-propylamine	.0500	0.907	PASS	

A Method 8151A	Blank	06/02/1999	1	
Compound	Result			
4,5-TP (Silvex)	ND			
4-Dichlorophenoxyacetic acid	ND			

A Method 8151A	Standard	06/02/1999	1	
Compound	Concentration	Result	%Difference	

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### Organic Quality Control/Quality Assurance for Project 102380

4,5-TP (Silvex)	150	157	4.7
4 Dichlorophenoxyacetic acid	150	147	-2.0

Method 8081A Blank 06/02/1999 1

Compound	Result
----------	--------

rin	ND
-----	----

pha-BHC(hexachlorocyclohexane)	ND
--------------------------------	----

ia-BHC(hexachlorocyclohexane)	ND
-------------------------------	----

ta-BHC(hexachlorocyclohexane)	ND
-------------------------------	----

ma-BHC (Lindane)	ND
------------------	----

ordane	ND
--------	----

-DDD	ND
------	----

-DDE	ND
------	----

-DDT	ND
------	----

ldrin	ND
-------	----

osulfan I (alpha)	ND
-------------------	----

osulfan II (beta)	ND
-------------------	----

osulfan sulfate	ND
-----------------	----

rin	ND
-----	----

rin aldehyde	ND
--------------	----

tachlor	ND
---------	----

tachlor epoxide	ND
-----------------	----

aphene	ND
--------	----

noxychlor	ND
-----------	----

Method 8081A Standard 06/02/1999 1

Compound	Concentration	Result	%Difference
----------	---------------	--------	-------------

rin	100	98.5	-1.5
-----	-----	------	------

ia-BHC(hexachlorocyclohexane)	100	99.6	-0.40
-------------------------------	-----	------	-------

i-BHC(hexachlorocyclohexane)	100	91.1	-8.9
------------------------------	-----	------	------

ia-BHC(hexachlorocyclohexane)	100	99.4	-0.60
-------------------------------	-----	------	-------

ia-BHC (Lindane)	100	97.5	-2.5
------------------	-----	------	------

-DDD	100	97.1	-2.9
------	-----	------	------

-DDE	100	99.6	-0.40
------	-----	------	-------

-DDT	100	96.7	-3.3
------	-----	------	------

ldrin	100	99.7	-0.30
-------	-----	------	-------

osulfan I (alpha)	100	98.6	-1.4
-------------------	-----	------	------

osulfan II (beta)	100	95.9	-4.1
-------------------	-----	------	------

osulfan sulfate	100	96.5	-3.5
-----------------	-----	------	------

rin	100	99.3	-0.70
-----	-----	------	-------

rin aldehyde	100	94.4	-5.6
--------------	-----	------	------

tachlor	100	98.2	-1.8
---------	-----	------	------

tachlor epoxide	100	98.7	-1.3
-----------------	-----	------	------

noxychlor	100	91.5	-8.5
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SET Quality Control/Quality Assurance for Project 102380

Flash Point (Reg. Limit 140.0 F)

(Analyzed: 05/28/1999 1515 PRE Verified: 06/02/1999 09:03 NGT)

Sample	Type	Result	Value	Unit	Percent
	Standard	84	80	Degrees F	5.0
409123	Duplicate	132	129	Degrees F	1.5

TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/08/1999 1139 WOB Verified: 06/08/1999 12:17 WJP)

Sample	Type	Result	Value	Unit	Percent
	Standard	1.91	2.00	ppm	-4.5
	Standard	0.962	1.00	ppm	-3.8
	Standard	0.946	1.00	ppm	-5.4
409349	Direct SPK		101	ppm	101
409349	Direct SPK		98	ppm	98

TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0993	0.100	ppm	-0.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.304	0.300	ppm	1.3
	Standard	0.301	0.300	ppm	0.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.297	0.300	ppm	-1.0
	Standard	0.300	0.300	ppm	0.0
	Standard	0.102	0.100	ppm	2.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.319	0.300	ppm	6.3
	Standard	0.318	0.300	ppm	6.0
	Standard	0.321	0.300	ppm	7.0
	LCS	0.0616	0.100	ppm	-38.4
	LCS	0.0155	0.0200	ppm	-22.5
	LCS	0.0150	0.0200	ppm	-25.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
09316	Spike		0.100	ppm	71
09333	Spike		0.100	ppm	66
09334	Spike		0.100	ppm	64
09335	Spike		0.100	ppm	66
09336	Spike		0.100	ppm	67
09337	Spike		0.100	ppm	67
09350	Spike		0.100	ppm	67

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## SET Quality Control/Quality Assurance for Project 102380

## TCLP Silver (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
350	Spike		0.100	ppm	61
374	Spike		0.0200	ppm	64
374	Spike		0.0200	ppm	62
375	Spike		0.100	ppm	61
376	Spike		0.100	ppm	62
377	Spike		0.100	ppm	63
378	Spike		0.100	ppm	63
420	Spike		0.100	ppm	46
422	Spike		0.100	ppm	57
561	Spike		0.100	ppm	59

## TCLP Arsenic (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0995	0.100	ppm	-0.5
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.295	0.300	ppm	-1.7
	Standard	0.321	0.300	ppm	7.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.316	0.300	ppm	5.3
	Standard	0.317	0.300	ppm	5.7
	Standard	0.310	0.300	ppm	3.3
	Standard	0.306	0.300	ppm	2.0
	Standard	0.315	0.300	ppm	5.0
	LCS	0.482	0.500	ppm	-3.6
	LCS	0.0941	0.100	ppm	-5.9
	Blank	<0.100		ppm	
	Blank	<0.500		ppm	
316	Spike		0.500	ppm	102
333	Spike		0.500	ppm	100
334	Spike		0.500	ppm	100
335	Spike		0.500	ppm	104
349	Spike		0.500	ppm	99
349	Spike		0.500	ppm	99
350	Spike		0.500	ppm	99
350	Spike		0.500	ppm	95
374	Spike		0.100	ppm	91
374	Spike		0.100	ppm	88

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## TCLP Arsenic (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
09375	Spike		0.500	ppm	102
09376	Spike		0.500	ppm	102
09377	Spike		0.500	ppm	101
09378	Spike		0.500	ppm	103

## TCLP Barium (Reg. Limit 100.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0993	0.100	ppm	-0.7
	Standard	0.309	0.300	ppm	3.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.304	0.300	ppm	1.3
	Standard	0.296	0.300	ppm	-1.3
	Standard	0.312	0.300	ppm	4.0
	Standard	0.304	0.300	ppm	1.3
	Standard	0.311	0.300	ppm	3.7
	Standard	0.103	0.100	ppm	3.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.318	0.300	ppm	6.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.317	0.300	ppm	5.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.318	0.300	ppm	6.0
	LCS	0.433	0.500	ppm	-13.4
	LCS	0.106	0.100	ppm	6.0
	LCS	0.105	0.100	ppm	5.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	0.086		ppm	
9316	Spike		0.500	ppm	101
9333	Spike		0.500	ppm	94
9334	Spike		0.500	ppm	97
9335	Spike		0.500	ppm	96
9349	Spike		0.500	ppm	95
9349	Spike		0.500	ppm	96
9350	Spike		0.500	ppm	97
9350	Spike		0.500	ppm	92
9374	Spike		0.100	ppm	80
9374	Spike		0.100	ppm	58
9377	Spike		0.500	ppm	95
9377	Spike		0.500	ppm	95

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TCLP Barium (Reg. Limit 100.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
377	Spike		0.500	ppm	95
378	Spike		0.500	ppm	96
420	Spike		0.500	ppm	98
422	Spike		0.500	ppm	96
561	Spike		0.500	ppm	99

TCLP Cadmium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.102	0.100	ppm	2.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.305	0.300	ppm	1.7
	Standard	0.303	0.300	ppm	1.0
	Standard	0.310	0.300	ppm	3.3
	Standard	0.302	0.300	ppm	0.7
	Standard	0.305	0.300	ppm	1.7
	Standard	0.104	0.100	ppm	4.0
	Standard	0.320	0.300	ppm	6.7
	Standard	0.317	0.300	ppm	5.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.315	0.300	ppm	5.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.317	0.300	ppm	5.7
	LCS	0.223	0.250	ppm	-10.8
	LCS	0.0499	0.0500	ppm	-0.2
	LCS	0.0495	0.0500	ppm	-1.0
	Blank	<0.0100		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
316	Spike		0.250	ppm	101
333	Spike		0.250	ppm	96
334	Spike		0.250	ppm	95
335	Spike		0.250	ppm	97
349	Spike		0.250	ppm	96
349	Spike		0.250	ppm	98
350	Spike		0.250	ppm	98
350	Spike		0.250	ppm	92
374	Spike		0.0500	ppm	114
374	Spike		0.0500	ppm	110
375	Spike		0.250	ppm	95

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TCLP Cadmium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
409376	Spike		0.250	ppm	80
409377	Spike		0.250	ppm	94
409378	Spike		0.250	ppm	96
409420	Spike		0.250	ppm	93
409422	Spike		0.250	ppm	95
409561	Spike		0.250	ppm	97

TCLP Chromium (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0998	0.100	ppm	-0.2
	Standard	0.309	0.300	ppm	3.0
	Standard	0.313	0.300	ppm	4.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.300	0.300	ppm	0.0
	Standard	0.321	0.300	ppm	7.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.317	0.300	ppm	5.7
	Standard	0.314	0.300	ppm	4.7
	Standard	0.313	0.300	ppm	4.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.318	0.300	ppm	6.0
	LCS	0.485	0.500	ppm	-3.0
	LCS	0.0980	0.100	ppm	-2.0
	Blank	<0.0200		ppm	
	Blank	<0.100		ppm	
09316	Spike		0.500	ppm	103
09333	Spike		0.500	ppm	98
09334	Spike		0.500	ppm	98
09335	Spike		0.500	ppm	102
09349	Spike		0.500	ppm	98
09349	Spike		0.500	ppm	98
09350	Spike		0.500	ppm	98
09350	Spike		0.500	ppm	92
09374	Spike		0.100	ppm	100
09374	Spike		0.100	ppm	86
09375	Spike		0.500	ppm	103
09376	Spike		0.500	ppm	98
09376	Spike		0.500	ppm	97
09376	Spike		0.500	ppm	100

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## TCLP Mercury (Reg. Limit 0.2)

(Analyzed: 06/02/1999 1412 WOB Verified: 06/03/1999 12:14 NGT)

ple	Type	Result	Value	Unit	Percent
	Standard	23.7	25.0	ppb	-5.2
	Standard	4.87	5.00	ppb	-2.6
	Standard	4.80	5.00	ppb	-4.0
	Standard	4.83	5.00	ppb	-3.4
	Standard	4.75	5.00	ppb	-5.0
	LCS	9.05	10.0	ppb	-9.5
	LCS	10.5	10.0	ppb	5.0
	Blank	<0.10		ppb	
	Blank	<0.15		ppb	
49	Spike		10.0	ppb	97
78	Spike		10.0	ppb	101
78	Spike		10.0	ppb	93
20	Spike		10.0	ppb	94
22	Spike		10.0	ppb	100
61	Spike		10.0	ppb	91
52	Spike		10.0	ppb	76
52	Spike		10.0	ppb	80
	Standard	24.7	25.0	ppb	-1.2
	Standard	5.13	5.00	ppb	2.6
	Standard	5.28	5.00	ppb	5.6
	Standard	5.23	5.00	ppb	4.6
	Standard	5.08	5.00	ppb	1.6
	LCS	9.38	10.0	ppb	-6.2
	Blank	<0.15		ppb	
34	Spike		10.0	ppb	96
49	Spike		10.0	ppb	100
50	Spike		10.0	ppb	102
50	Spike		10.0	ppb	101
74	Spike		10.0	ppb	52
77	Spike		10.0	ppb	95
52	Spike		10.0	ppb	95
52	Spike		10.0	ppb	93
42	Spike		10.0	ppb	102
42	Spike		10.0	ppb	97

## TCLP Lead (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

ple	Type	Result	Value	Unit	Percent
	Standard	0.0986	0.100	ppm	-1.4
	Standard	0.310	0.300	ppm	3.3
	Standard	0.310	0.300	ppm	3.3
	Standard	0.309	0.300	ppm	3.0
	Standard	0.304	0.300	ppm	1.3







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TCLP Lead (Reg. Limit 5.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.317	0.300	ppm	5.7
	Standard	0.309	0.300	ppm	3.0
	Standard	0.315	0.300	ppm	5.0
	Standard	0.103	0.100	ppm	3.0
	Standard	0.322	0.300	ppm	7.3
	Standard	0.321	0.300	ppm	7.0
	Standard	0.318	0.300	ppm	6.0
	Standard	0.323	0.300	ppm	7.7
	Standard	0.322	0.300	ppm	7.3
	Standard	0.323	0.300	ppm	7.7
	LCS	0.449	0.500	ppm	-10.2
	LCS	0.102	0.100	ppm	2.0
	LCS	0.101	0.100	ppm	1.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
9316	Spike		0.500	ppm	105
9333	Spike		0.500	ppm	102
9334	Spike		0.500	ppm	103
9335	Spike		0.500	ppm	105
9349	Spike		0.500	ppm	103
9349	Spike		0.500	ppm	104
9350	Spike		0.500	ppm	104
9350	Spike		0.500	ppm	99
9374	Spike		0.100	ppm	134
9374	Spike		0.100	ppm	84
9375	Spike		0.500	ppm	106
9376	Spike		0.500	ppm	102
9377	Spike		0.500	ppm	103
9378	Spike		0.500	ppm	103
9420	Spike		0.500	ppm	104
9422	Spike		0.500	ppm	102
9561	Spike		0.500	ppm	104

TCLP Selenium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.0980	0.100	ppm	-2.0
	Standard	0.302	0.300	ppm	0.7
	Standard	0.311	0.300	ppm	3.7
	Standard	0.303	0.300	ppm	1.0

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## SET Quality Control/Quality Assurance for Project 102380

## TCLP Selenium (Reg. Limit 1.0)

(Analyzed: 06/02/1999 1300 WOB Verified: 06/03/1999 14:50 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.285	0.300	ppm	-5.0
	Standard	0.307	0.300	ppm	2.3
	Standard	0.308	0.300	ppm	2.7
	Standard	0.323	0.300	ppm	7.7
	Standard	0.101	0.100	ppm	1.0
	Standard	0.319	0.300	ppm	6.3
	Standard	0.322	0.300	ppm	7.3
	Standard	0.324	0.300	ppm	8.0
	Standard	0.312	0.300	ppm	4.0
	Standard	0.306	0.300	ppm	2.0
	Standard	0.319	0.300	ppm	6.3
	LCS	0.487	0.500	ppm	-2.6
	LCS	0.108	0.100	ppm	8.0
	LCS	0.100	0.100	ppm	0.0
	Blank	<0.0500		ppm	
	Blank	<0.250		ppm	
	Blank	<0.250		ppm	
116	Spike		0.500	ppm	102
133	Spike		0.500	ppm	98
134	Spike		0.500	ppm	100
135	Spike		0.500	ppm	104
149	Spike		0.500	ppm	98
149	Spike		0.500	ppm	100
150	Spike		0.500	ppm	98
150	Spike		0.500	ppm	96
174	Spike		0.100	ppm	92
174	Spike		0.100	ppm	92
175	Spike		0.500	ppm	102
176	Spike		0.500	ppm	99
177	Spike		0.500	ppm	99
178	Spike		0.500	ppm	102
22	Spike		0.500	ppm	103
61	Spike		0.500	ppm	107

## Reactivity Cyanide (RL 250)

(Analyzed: 05/28/1999 1500 RSV Verified: 06/02/1999 11:28 SAH)

Sample	Type	Result	Value	Unit	Percent
	Standard	0.196	0.20	ppm	-2.0
	Standard	0.100	0.10	ppm	0.0
	Standard	0.401	0.40	ppm	0.3
	Standard	0.401	0.40	ppm	0.3



## 3. List of Common Acronyms and Abbreviations and Data Validation Qualifiers

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### 3.1 Common Acronyms and Abbreviations

COC	Chain-of-Custody
DoD	Department of Defense
DQO	Data Quality Objective
FD	Field Duplicate
EB	Equipment Blank
EM	Engineering Manual
EPA	Environmental Protection Agency
HTRW	Hazardous, Toxic, Radioactive Waste
ICP	Inductively Coupled Plasma
IDL	Instrument Detection Limit
IWTP	Industrial Waste Treatment Plant
LAFB	Laredo Air Force Base
LB	Laboratory Blank
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
QA/QC	Quality Assurance/Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference
SGR	Shotgun Range
TB	Trip Blank
USACE	United States Army Corps of Engineers

## 3.2 Data Validation Qualifiers

Code	Definition
2S	Second Source
BL	Blank
BS	Blank Spike/LCS
CC	Continuing Calibration
DL	Dilution
FD	Field Duplicate
HT	Holding Time
IB	In-Between (metals - B's → J's )
IC	Initial Calibration
IS	Internal Standard
LD	Lab Duplicate
MD	Matrix Spike Duplicate
MS	Matrix Spike
OT	Other (see DV worksheet)
PD	Pesticide Degradation
PS	Post Spike
RE	Re-extraction
SD	Serial Dilution
SS	Spiked Surrogate
TN	Tune

05029

## 4. Chain of Custody Synopsis

Chemical Analytical Methods					
Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010
Samples Collected on 21 May 1999					
001000N1	SO	0836	N	X	X <sup>1</sup>
001002N1	SO	0842	N	X	
002000N1	SO	0903	N	X	X <sup>1</sup>
002002N1	SO	0914	N	X	
003000N1	SO	0934	N	X	
003002N1	SO	0940	N	X	
004000N1	SO	0958	N	X	X <sup>1</sup>
004002N1	SO	1004	N	X	
005000N1	SO	1022	N	X	X <sup>1</sup>
005002N1	SO	1030	N	X	
006000N1	SO	1128	N	X	
006000FD1	SO	1128	FD	X	X <sup>1</sup>
006002N1	SO	1135	N	X	
006002FD1	SO	1135	FD	X	
007000N1	SO	1155	N	X	
007002N1	SO	1200	N	X	
008000N1	SO	1358	N	X	
008002N1	SO	1415	N	X	
009000N1	SO	1435	N	X	
009002N1	SO	1500	N	X	
010000N1	SO	1515	N	x	
010000FD1	SO	1515	FD	X	
010002N1	SO	1522	N	X	
011000N1	SO	1538	N	X	
011002N1	SO	1545	N	X	
012000N1	SO	1605	N	X	

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## Chemical Analytical Methods

Sample ID: SGRBHSO-	Matrix	Time	Type	Lead SW6010	SPLP/Lead SW1312/SW6010
012002N1	SO	1610	N	X	
SGRBHWQ012000EB1	WQ	1600	EB	X	

## Samples Collected on 22 May 1999

013000N1	SO	0820	N	X	
013002N1	SO	0830	N	X	
014000N1	SO	0845	N	X	
014002N1	SO	0850	N	X	
015000N1	SO	0922	N	X	
015002N1	SO	0930	N	X	
SGRBHWQ01500EB1	WQ	0900	EB	X	

## Samples Collected on 24 June 1999

016000N1	SO	1545	N	X <sup>2</sup>	X
017000N1	SO	1615	N	X <sup>2</sup>	X
018000N1	SO	1645	N	X <sup>2</sup>	X
018000MS1	SO	1645	FD	X <sup>2</sup>	X

Notes: X – Southwest Laboratory of Oklahoma

FD – Field Duplicate

EB - Equipment Blank

X<sup>1</sup> - Sample re-logged into the laboratory as SDG 39086.X<sup>2</sup> - Sample re-logged into the laboratory as SDG 39390.

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## 5. Sample Cross Reference Tables

### 5.1 Sample Cross Reference by Laboratory ID

Lab Sample ID	Sample ID	Sample Type
38707.01	SGRBHSO001000N1	N
38707.02	SGRBHSO001002N1	N
38707.03	SGRBHSO002000N1	N
38707.04	SGRBHSO002002N1	N
38707.05	SGRBHSO003000N1	N
38707.06	SGRBHSO003002N1	N
38707.07	SGRBHSO004000N1	N
38707.08	SGRBHSO004002N1	N
38707.09	SGRBHSO005000N1	N
38707.10	SGRBHSO005002N1	N
38707.11	SGRBHSO006000N1	N
38707.12	SGRBHSO006000FD1	FD
38707.13	SGRBHSO006002N1	N
38707.14	SGRBHSO006002FD1	FD
38707.15	SGRBHSO007000N1	N
38707.16	SGRBHSO007002N1	N
38707.17	SGRBHSO008000N1	N
38707.18	SGRBHSO008002N1	N
38707.19	SGRBHSO009000N1	N
38707.20	SGRBHSO010000N1	N
38707.21	MS from SGRBHSO010000N1	MS
38707.22	MSD from SGRBHSO010000N1	MSD
38708.01	SGRBHSO009002N1	N
38708.02	SGRBHSO010000FD1	FD
38708.03	SGRBHSO010002N1	N
38708.04	SGRBHSO011000N1	N
38708.05	SGRBHSO011002N1	N
38708.06	SGRBHWQ012000EB1	EB
38708.07	SGRBHSO012000N1	N

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Lab Sample ID	Sample ID	Sample Type
38708.08	SGRBHSO012002N1	N
38708.09	SGRBHSO013000N1	N
38708.10	SGRBHSO013002N1	N
38708.11	SGRBHSO014000N1	N
38708.12	SGRBHSO014002N1	N
38708.13	SGRBHWQ015000EB1	EB
38708.14	SGRBHSO015000N1	N
38708.15	SGRBHSO015002N1	N
39086.01	SGRBHSO002000N1	N
39086.02	SGRBHSO004000N1	N
39086.03	SGRBHSO005000N1	N
39086.04	SGRBHSO006000FD1	FD
39086.05	SGRBHSO001000N1	N
39177.01	SGRBHSO016000N1	N
39177.02	SGRBHSO017000N1	N
39177.03	SGRBHSO018000N1	N
39177.04	SGRBHSO018000MS1	FD
39390.01	SGRBHSO016000N1	N
39390.02	SGRBHSO017000N1	N
39390.03	SGRBHSO018000N1	N
39390.04	SGRBHSO018000MS1	N

Note: The laboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

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## 5.2 Sample Cross Reference by Sample ID

Sample ID	Lab Sample ID	Sample Type
SGRBHSO001000N1	38707.01	N
SGRBHSO001002N1	38707.02	N
SGRBHSO002000N1	38707.03	N
SGRBHSO002002N1	38707.04	N
SGRBHSO003000N1	38707.05	N
SGRBHSO003002N1	38707.06	N
SGRBHSO004000N1	38707.07	N
SGRBHSO004002N1	38707.08	N
SGRBHSO005000N1	38707.09	N
SGRBHSO005002N1	38707.10	N
SGRBHSO006000N1	38707.11	N
SGRBHSO006000FD1	38707.12	FD
SGRBHSO006002N1	38707.13	N
SGRBHSO006002FD1	38707.14	FD
SGRBHSO007000N1	38707.15	N
SGRBHSO007002N1	38707.16	N
SGRBHSO008000N1	38707.17	N
SGRBHSO008002N1	38707.18	N
SGRBHSO009000N1	38707.19	N
SGRBHSO010000N1	38707.20	N
MS from SGRBHSO010000N1	38707.21	MS
MSD from SGRBHSO010000N1	38707.22	MSD
SGRBHSO009002N1	38708.01	N
SGRBHSO010000FD1	38708.02	FD
SGRBHSO010002N1	38708.03	N
SGRBHSO011000N1	38708.04	N
SGRBHSO011002N1	38708.05	N
SGRBHWQ012000EB1	38708.06	EB
SGRBHSO012000N1	38708.07	N
SGRBHSO012002N1	38708.08	N
SGRBHSO013000N1	38708.09	N
SGRBHSO013002N1	38708.10	N

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Sample ID	Lab Sample ID	Sample Type
SGRBHSO014000N1	38708.11	N
SGRBHSO014002N1	38708.12	N
SGRBHWQ015000EB1	38708.13	EB
SGRBHSO015000N1	38708.14	N
SGRBHSO015002N1	38708.15	N
SGRBHSO002000N1	39086.01	N
SGRBHSO004000N1	39086.02	N
SGRBHSO005000N1	39086.03	N
SGRBHSO006000FD1	39086.04	FD
SGRBHSO001000N1	39086.05	N
SGRBHSO016000N1	39177.01	N
SGRBHSO017000N1	39177.02	N
SGRBHSO018000N1	39177.03	N
SGRBHSO018000MS1	39177.04	FD
SGRBHSO016000N1	39390.01	N
SGRBHSO017000N1	39390.02	N
SGRBHSO018000N1	39390.03	N
SGRBHSO018000MS1	39390.04	N

Note: The laboratory erroneously analyzed sample SGRBHSO001000N1 instead of the requested SGRBHSO009000N1.

## 6. Laredo Air Force Base – Site Investigation - SGR Site

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### 6.1 Metals

Soil samples were collected and analyzed for Lead, following SW-846 methodology. In addition, selected samples were analyzed for lead after undergoing the Synthetic Precipitation Leaching Procedure (SPLP), SW-846 method 1312. The number of samples analyzed under this Laboratory Sample Delivery Group (SDG), are outlined in Section 4.0 of this report.

All initial and continuing calibration criteria were met.

ICP serial dilutions were carried out at the frequency of one per batch. All criteria were met, except as noted below:

- The serial dilution provided in SDG 38708 was reported at 12.6 percent deviation. The results for all associated samples in SDG 38708 were flagged "J", as estimated.

#### 6.1.1 Accuracy

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) and recoveries were within acceptable quality control limits.

#### 6.1.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

The laboratory sample duplicate values were within acceptable quality control limits.

Comparison of the detected parameters in the field and quality control duplicate samples reflected no reportable differences, except as noted below:

- The RPD for Field duplicates (SGRBHSO006000N1 and SGRBHSO006000FD1) was high at 78.4 percent. The results in these two samples have been flagged "J", as estimated.

05036

### 6.1.3 Representativeness

The initial calibration blank, continuing calibration blank and laboratory method blank samples were reported free of contamination, except as noted below:

- Lead was detected in a continuing calibration blank at a concentration of 2.4 ug/L. No sample results were affected.

All samples were analyzed within the required 180-day holding time.

No dilutions were required in the analysis of these samples.

### 6.1.4 Comparability

Quality assurance samples were collected and the results provided to the USACE. The USACE will provide a supplemental review and comparison of the field and quality assurance results where applicable.

## 6.2 Technical Summary

A complete review of the laboratory data collected during the investigation of the Laredo AFB Site Investigation sampling event was performed. Upon completion, the following items were noted:

The chain-of-custody and field data forms were complete and contained the required information without any noted exceptions.

## 6.3 Completeness

All of the data have been qualified according to the findings in the sections listed above. In addition, the laboratory qualified detected concentrations below the reporting limit with "B" qualifiers. During data validation, the "B" qualifiers received from the laboratory were changed to "J" qualifiers. While some of the data validated for this sampling event were qualified as estimated (J), none of the data were rejected (where no valid result for parameter remains). The data is 100 percent complete, therefore the goal of 90 percent completeness has been met.

## 6.4 Conclusions

A review of the analytical data submitted regarding the May/June 1999 site investigation of the former Laredo AFB Shotgun Ranges by CH2M HILL has been completed. An overall evaluation of the data indicates that the sample handling, shipment, and analytical procedures have been adequately completed, and that the analytical results should be considered accurate, except in those cases where they have been qualified as discussed in the previous sections.

## 6.5 Laredo AFB, Texas, Lead Data Qualification Summary – SGR Site

SDG	Sample	Analyte	Reason	Flag	A or P
38707	SGRBHSO006000N1 SGRBHSO006000FD	Pb	Field Duplicate RPD	J	A
38708	ALL	Pb	Serial Dilution	J	A

# 7. Quality Assurance Summary Table

Quality Control/Quality Assurance Results Outside of Quality Control Limits					
Former Laredo Air Force Base Shotgun Ranges					
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
Lead / SDG 38707	SGRBHSD001000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: 6000N1 / 6000FD1 = 10 / 22.9 RPD = 78.4 - Flag "J"	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD001002N1				
	SGRBHSD002000N1				
	SGRBHSD002002N1				
	SGRBHSD003000N1				
	SGRBHSD003002N1				
	SGRBHSD004000N1				
	SGRBHSD004002N1				
	SGRBHSD005000N1				
	SGRBHSD005002N1				
	SGRBHSD006000N1				
	SGRBHSD006000FD1				
	SGRBHSD006002N1				
	SGRBHSD006002FD1				
	SGRBHSD007000N1				
	SGRBHSD007002N1				
	SGRBHSD008000N1				
	SGRBHSD008002N1				
	SGRBHSD009000N1				
	SGRBHSD010000N1				
	MS from SGRBHSO010000N1				
	MSD from SGRBHSO010000N1				
Lead / SDG 38708	SGRBHSD009002N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: CCB - PB = 2.3 ug/L - no Flags	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: 12.6 %D - Flag "J"
	SGRBHSD010000FD1				
	SGRBHSD010002N1				
	SGRBHSD011000N1				
	SGRBHSD011002N1				
	SGRBHSD012000EB1				
	SGRBHSD012000N1				

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Quality Control/Quality Assurance Results Outside of Quality Control Limits					
Former Laredo Air Force Base Shotgun Ranges					
Analysis/Batch	Associated Samples	MS/MSD Recoveries/RPD/Sample Duplicate RPD	LCS/LCSD Recoveries/RPD	Surrogate Recoveries/Internal Standards/Method Blanks	Holding Time/Calibrations/ Sample Condition
Lead / SPLP Lead SDG 39086	SGRBHSD012002N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD013000N1				
	SGRBHSD013002N1				
	SGRBHSD014000N1				
	SGRBHSD014002N1				
	SGRBHWQ015000EB1				
	SGRBHSD015000N1				
Lead / SPLP Lead SDG 39177	SGRBHSD002000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD004000N1				
	SGRBHSD005000N1				
	SGRBHSD006000FD1				
	SGRBHSD001000N1				
	SGRBHSD016000N1				
	SGRBHSD017000N1				
Lead / SDG 39390	SGRBHSD018000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD018000MS1				
	SGRBHSD016000N1				
	SGRBHSD017000N1				
Lead / SDG 39390	SGRBHSD018000N1	MS/MSD Recoveries/RPD: All OK  Sample Duplicates: All OK	LCS: OK	Surrogate Recoveries: NA  Internal Standards: NA  Method Blank: no targets detected	Samples received in good condition.  Holding Times: OK  Calibrations: OK  Serial Dilutions: OK
	SGRBHSD018000MS1				
	SGRBHSD018000MS1				

05040

## **Sample Analytical Results**

05041





## Data Review and Validation for:

Metals and/or Cyanide LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	38707
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: <u>22 total</u>
Field QC Samples:	<u>11/12 + 13/14 - FDU, 20/21/22 - NAT/MS/MSD</u>	
Reviewed by & Date:	<u>H. Kelly 4/13/2000</u>	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input checked="" type="checkbox"/> LCS only <input type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

## Case Narrative Comments:

NO EXCEPTIONS NOTED

QC Item	Comments
<u>FDU</u>	<u>11/12 = 10 122.9 RPD = 78.4</u>
	<u>78.9 "J" RESULTS in 11/12.</u>

HSO001000N1

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT\_ID: \_SGRBHS0001000N1

HS0001002N1

[illegible]

HR 4/1/3

HSO002000N1

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
Code: SWOK Case No.: 38707 SAS No.: SDG No.: 38707  
Matrix (soil/water): SOIL Lab Sample ID: 38707.03  
Level (low/med): LOW Date Received: 05/25/99  
% Solids: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_\_  
Color After: YELLOW

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT ID: SGRBHS0002000N1

FORM I - IN

05046

HS0002002N1

[illegible]

CLIENT\_ID: SGRBHS0002002N1

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05047

HSO003000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.05  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99  
% Solids: 91.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_  
Color After: YELLOW\_\_\_\_

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments:

CLIENT ID: SGRBHS0003000N1

FORM I - IN

AL 4/13  
05048

SDG No.: 38707

Lab Sample ID: 38707.06

Date Received: 05/25/99

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0003002N1

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05043



CLIENT SAMPLE ID

HSO004000N1

[illegible]

Comments :

CLIENT ID: SGRBHS0004000N1

FORM I - IN

AK 4/13

05050

HS0004002N1

[illegible]

Comments:

CLIENT\_ID: SGRBHS0004002N1

FORM I - IN

05051

CLIENT SAMPLE ID

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.09  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99  
% Solids: 92.7\_\_\_\_\_

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0005000N1

FORM I - IN

05052

CLIENT SAMPLE ID

HSO005002N1

[illegible]

Comments:

FORM I - IN

05053

4/13

HSO006000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.11  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99  
% Solids: 86.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_  
Color After: YELLOW\_\_\_\_

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

Comments :

CLIENT\_ID: \_SGRBHS0006000N1.

FORM I - IN

05054

HSO006000FD

[illegible]

J FD

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0006000FD

FORM I - IN

05055

4/13

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707\_\_\_\_\_ SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.13\_\_\_\_\_  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99\_\_\_\_\_  
% Solids: 87.5\_\_\_\_\_

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0006002N1

CLIENT SAMPLE ID

HS0006002FD

[illegible]

Comments:

FORM I - IN

05057

4/13



CLIENT SAMPLE ID

HSO007000N1

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0007000N1

HSO007002N1

[illegible]

Comments:

CLIENT ID: SGRBHS0007002N1

05053

4/1/3

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Lab Code: SWOK\_\_\_\_\_ Case No.: 38707 SAS No.: \_\_\_\_\_ SDG No.: 38707\_\_\_\_\_  
Matrix (soil/water): SOIL\_\_\_\_\_ Lab Sample ID: 38707.17\_\_\_\_\_  
Level (low/med): LOW\_\_\_\_\_ Date Received: 05/25/99\_\_\_\_\_  
% Solids: 92.2\_\_\_\_\_

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: \_SGRBHS0008000N1

HS0008002N1

[illegible]

4/13

HSO009000N1

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID: SGRBHS0009000N1

CLIENT SAMPLE ID

HSO0010000N

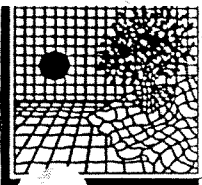
[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID: SGRBHS00010000N

4/13

05063



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

Hill

REPORT : 38707.05

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.05  
SAMPLE #: SGRBHS0003000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

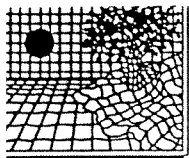
%MOISTURE: 8.8

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	8.6	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05064



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

12MHill

REPORT : 38707.10

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.10  
SAMPLE #: SGRBHSO005002N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

%MOISTURE: 10.7

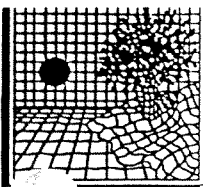
## MISCELLANEOUS

PARAMETER	RESULTS**	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.9	su	06/05/99	SM 4500H/EPA	150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05065





# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

LMHill

REPORT : 38707.17

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38707.17  
SAMPLE #: SGRBHSO008000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

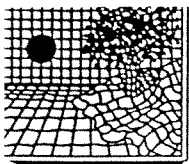
%MOISTURE: 7.8

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.8	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05066



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

H2MHill

REPORT : 38708.03

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38708.03  
SAMPLE #: SGRBHSO010002N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

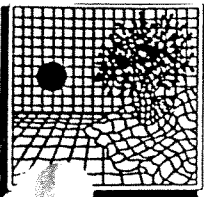
%MOISTURE: 8.0

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	7.9	su	06/05/99	SM 4500H/EPA 150.1

COMPOUND\* = RESULTS REPORTED AS RECEIVED

05067



# SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

2MHill

REPORT : 38708.07

Suite 300  
Del City, OK

REPORTED : 06/15/99

Attn: Charles Johnson

PROJECT : LORADO AFB, TX  
LAB# : 38708.07  
SAMPLE #: SGRBHSO012000N1  
LOCATION:  
MATRIX : Soil

SAMPLED : 05/21/99  
SUBMITTED: 05/25/99

%MOISTURE: 6.0

## MISCELLANEOUS

PARAMETER	RESULTS**	DATE UNITS PREPARED	DATE ANALYZED	REFERENCE METHOD
PH*	8.1	su	06/05/99	SM 4500H/EPA 150.1

OUND\* = RESULTS REPORTED AS RECEIVED

05068



Data Review and Validation for:

Metals and/or Cyanide

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	38708A
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	
Field QC Samples:	Number of Samples: 17 total	
Reviewed by & Date:	4/13/2000	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blank wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> see blank wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

58K19K Dilution - Flagged "E" by lab.

QC Item	Comments
CCB	Lead detected in CCB at 2.3 ug/L. NO samples affected - NO Flags applied
SD	10 - 12.6 % RD - Flag all results "J".

HSO009002N1

[illegible]

Comments:

CLIENT ID: SGRBHS0009002N1

FORM I - IN

ALL 4/13/2000

05071

HS0010000FD

[illegible]

CLIENT\_ID: SGRBHS0010000FD

BL 4/13

05072

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-OKC  
 Code: SWOK Case No.: 38708 SAS No.: SDG No.: 38708A  
 Matrix (soil/water): SOIL Lab Sample ID: 38708.03  
 Level (low/med): LOW Date Received: 05/25/99  
 % Solids: 92.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: MEDIUM  
Color After: YELLOW\_\_\_\_ Clarity After: CLEAR\_\_\_\_ Artifacts: \_\_\_\_\_

Comments:

CLIENT\_ID: SGRBHS0010002FD

FORM I - IN

05073



HS0011000N1

[illegible]

CLIENT ID: SGRBHS0011000N1

4/13

05074

CLIENT SAMPLE ID

HSO011002N1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT\_ID: SGRBHS0011002N1

FORM I - IN

4/13

05075

HSO012000N1

[illegible]

CLIENT ID: SGRBHS0012000N1

4/13

CLIENT SAMPLE ID

HSO012002N1

[illegible]

Texture: MEDIUM  
Artifacts:

CLIENT ID: SGRBHS0012002N1

4/13  
05077

HSO013000N1

[illegible]

J SD

Comments :

CLIENT ID: SGRBHS0013000N1

FORM I - IN

05073

CLIENT SAMPLE ID

HS0013002N1

[illegible]

Comments :

CLIENT\_ID: SGRBHS0013002N1

4/13  
05079

HS0014002N1

[illegible]

T 5D

Comments:

CLIENT ID: SGRBHS0014002N1

FORM I - IN

05080

HS0015000N1

[illegible]

Texture: MEDIUM  
Artifacts: \_\_\_\_\_

CLIENT ID: SGRBHS0015000N1

05081





CLIENT SAMPLE ID

SGRBHWQ01200

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLEIENTS\_ID=\_SGRBHWQ012000EB

FORM I - IN

05083

SGRBHWQ01500

[illegible]

EB

Comments:

CLEIENTS\_ID=\_SGRBHWQ015000EB\_\_\_\_\_

FORM I - IN

05084

AK  
4/13



Data Review and Validation for:

TOTAL 4 SPLP

Metals and/or Cyanide

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39086
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	Number of Samples: 5
Field QC Samples:		
Reviewed by & Date:	H. K. L.	4/13/2020
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14 raw	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	2	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
		ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blk wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blk wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS  
 (NOTE: samples previously logged-in & analyzed as 50639707)

QC Item

Comments

NO FLAGS APPLIED.  
 (CHANGED "B" Qualifiers from lab → "J")

U.S. EPA - CLP

1  
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK	Contract: CH2M-OKC	SGRBHS000200
Lab Code: SWOK	Case No.: 39086	SAS No.:
Matrix (soil/water): SOIL		SDG No.: 39086
Level (low/med): LOW		Lab Sample ID: 39086.01
Solids: 92.1		Date Received: 06/21/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN  
Color After: COLORLESS

Clarity Before: \_\_\_\_\_  
Clarity After: \_\_\_\_\_

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT\_ID:=SGRBHS0002000N1

FORM I - IN

11/4/13/2000  
05087

1  
INORGANIC ANALYSES DATA SHEET

SGRBHS000400

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Comments:

CLIENT\_ID:=SGRBHS0004000N1

FORM I - IN

05088





1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

SGRBHS000600

```

ab Name: SOUTHWEST_LAB_OF_OK_____ Contract: CH2M-OKC_____
ab Code: SWOK_____ Case No.: 39086_____ SAS No.: _____ SDG No.: 39086_____
atrix (soil/water): SOIL_____ Lab Sample ID: 39086.04_____
evel (low/med): LOW_____ Date Received: 06/21/99_____
Solids: 90.0_____

```

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN      Clarity Before:      Texture: MEDIUM  
Color After: COLORLESS      Clarity After:      Artifacts:     

Comments:

CLIENT ID:=SGRBHS0006000FD

FORM I - IN

05090



1

INORGANIC ANALYSES DATA SHEET

002000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Code: SWOK\_\_\_\_\_ Case No.: 39086 SAS No.: \_\_\_\_\_ SDG No.: 39086\_\_\_\_\_  
ix (soil/water): WATER Lab Sample ID: 39086.01\_\_\_\_\_  
l (low/med): LOW Date Received: 06/21/99\_\_\_\_\_  
lids: 0.0\_\_\_\_\_

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

ments:  
CLIENT ID=SGRBHS0002000N1

FORM I - IN

05092

4/13

05093

1  
INORGANIC ANALYSES DATA SHEET

005000N1

Concentration Units (ug/L or mg/kg dry weight): UG/L\_

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT\_ID=SGRBHS0005000N1

FORM I - IN

05094

4/13

1  
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

006000FD

Name: SOUTHWEST_LAB_OF_OK	Contract: CH2M-OKC	006000FD
Code: SWOK	Case No.: 39086	SAS No.: SDG No.: 39086
Matrix (soil/water): WATER		Lab Sample ID: 39086.04
Rel (low/med): LOW		Date Received: 06/21/99
Solids: 0.0		

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

```
lor Before:  COLORLESS
lor After:   COLORLESS
```

```
Clarity Before: CLEAR_
Clarity After:  CLEAR_
```

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

ments:

CLIENT ID=SGRBHS0006000FD

FORM I - IN

35095

1

INORGANIC ANALYSES DATA SHEET

001000N1

Name: SOUTHWEST\_LAB\_OF\_OK\_\_\_\_\_ Contract: CH2M-OKC\_\_\_\_\_  
Code: SWOK\_\_\_\_\_ Case No.: 39086 SAS No.: \_\_\_\_\_ SDG No.: 39086\_\_\_\_\_  
Matrix (soil/water): WATER Lab Sample ID: 39086.05\_\_\_\_\_  
Depth (low/med): LOW Date Received: 06/21/99\_\_\_\_\_  
Solids: 0.0\_\_\_\_\_

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT ID=SGRBHS0001000N1

FORM I - IN

05096

4/13





Data Review and Validation for:

TOTAL &amp; SPLP

Metals and/or Cyanide

LEAD ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39177
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	
Field QC Samples:	Number of Samples: 6 total	
Reviewed by & Date:	4/13/2000	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13, 14, COC	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
		Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input checked="" type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input type="checkbox"/> None*	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Meth	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED  
(NOTE: sample #5 put on hold)

QC Item

Comments

BPKG/COC 18000 FD1 put on hold - NOT analyzed  
(changed "B" quantity from lab → "5")  
NO FLAGS APPLIED.

## 1

016000NI

SDG No.: 39177

Lab Sample ID: 39177.01  
Date Received: 06/26/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Clarity Before: \_\_\_\_\_  
Clarity After: CLEAR

Texture: MEDIUM  
Artifacts:

Comments:

CLIENT\_ID: \_SGRBHS0016000N1

FORM I - IN

NA 4/13/2000

05093

CLIENT SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK	Contract: CH2M-OKC	017000N1
Lab Code: SWOK	Case No.: 39177	SAS No.: SDG No.: 39177
Matrix (soil/water): SOIL		Lab Sample ID: 39177.02
Level (low/med): LOW		Date Received: 06/26/99
% Solids: 83.2		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN\_\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: MEDIUM  
Color After: YELLOW\_\_\_\_\_ Clarity After: CLEAR\_\_\_\_\_ Artifacts: \_\_\_\_\_

Comments:

CLIENT\_ID: SGRBHS0017000N1

FORM I - IN

05100

SHY/12



CLIENT SAMPLE ID

SO016000N1

Concentration Units (ug/L or mg/kg dry weight): UG/L\_

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT\_ID=\_SGRBHS0016000N1

FORM I - IN

05102

CLIENT SAMPLE ID

SO017000N1

Name: SOUTHWEST\_LAB\_OF\_OK Contract: CH2M-UT  
Lab Code: SWOK Case No.: 39177 SAS No.: SDG No.: 39177B  
Matrix (soil/water): WATER Lab Sample ID: 39177.02  
Level (low/med): LOW Date Received: 06/26/99  
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

J IR

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

Comments:

CLIENT\_ID=\_SGRBHSO017000N1

FORM I - IN

05103

SO018000N1

[illegible]

Texture: \_\_\_\_\_  
Artifacts: \_\_\_\_\_

CLIENT\_ID= \_SGRBHS0018000N1

05104





Data Review and Validation for:

Metals and/or Cyanide U.S. ONLY

Project Name & Task:	LAREDO AFB	IWTP
Project # & Case/SDG:	147436.DV.ZZ	39390
Methods:	<input type="checkbox"/> ILM04.0 <input checked="" type="checkbox"/> SW-846 (6010B,7000 Series) <input type="checkbox"/> Hg 7470A/71A <input type="checkbox"/> 200 series <input type="checkbox"/> 300 series <input type="checkbox"/> SM 3000 series	
Program:	<input type="checkbox"/> AFCEE <input type="checkbox"/> NFESC <input type="checkbox"/> Other:	
Field QC Samples:	Number of Samples: <u>43</u>	
Reviewed by & Date:	<u>H. Kelly</u> <u>4/13/2000</u>	
Matrix:	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Other	

Quality Control	Form #	Requirements	Check (If No* checked, see comments)	Flags Applied (see comments)
Data Pkg Complete (DP)	Pkg	All required deliverables in pkg.	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	COC	All samples on COC reported	<input type="checkbox"/> OK <input checked="" type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
Holding Times (HT)	1, 13,	Cyanide 14 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	14,	Mercury 28 day HT met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
	COC	Other metals 160 day HT met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Initial Calibration (IC)	14	Min. initial # of levels per method	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	<input type="checkbox"/> Flags Applied
	raw	Linearity method criteria	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> Not provided	
	2	ICV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Continuing Calibration (CC)	14	CCV frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	2	CCV criteria	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Blanks (PB,EB,FB/AB)	3	Detects (>RL/CRDL)	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	<input type="checkbox"/> Flags Applied
ICB and CCB	3	ICB, CCB	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> see blink wksht	
Prep Blank Frequency (PB)	3	1 PB per batch	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
ICP Interference Check (ICS)	4	Method criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
MS/MSD or MS/LD	5	<input type="checkbox"/> MS/MSD <input type="checkbox"/> MS/LD <input checked="" type="checkbox"/> None*	<input type="checkbox"/> OK <input type="checkbox"/> No*	<input type="checkbox"/> Flags Applied
	5	Recovery Limits: <input type="checkbox"/> Lab <input type="checkbox"/> Meth	<input type="checkbox"/> OK <input type="checkbox"/> No*	
	6	Precision criteria	<input type="checkbox"/> OK <input type="checkbox"/> No*	
Post Spike Samp. Recov.	5	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Duplicate Samples (LD)	6	Criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
LCS (BS)	7	Frequency	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
<input type="checkbox"/> LCS only <input checked="" type="checkbox"/> LCS/LCSD		Acceptance criteria met	<input checked="" type="checkbox"/> OK <input type="checkbox"/> No*	
Standard Addition	8	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
ICP Serial Dilution (SD)	9	Criteria met	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Internal Standard (IS)		Internal Standards used	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	
Sample Evaluations (SAM)	1	All hits within cal. Range	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> All ND	<input type="checkbox"/> Flags Applied
	1	Total > Dissolved	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied
Field Duplicates (FD)	1	Precision of native vs Field Dup	<input type="checkbox"/> OK <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Flags Applied

This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method.

Case Narrative Comments:

NO EXCEPTIONS NOTED  
(NOTE: sample #5 - put on hold)

QC Item

Comments

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NO FLAGS APPLIED  
(CHANGED "B" Qualifiers from Lab → "J")

CLIENT SAMPLE ID

016000N1

[illegible]

Comments:

CLIENT\_ID\_=SGRBHS0016000NI

4/13/2002

05107

CLIENT SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK_____	Contract: CH2M-OKC_____	017000N1
Lab Code: SWOK_____	Case No.: 39390	SAS No.: _____
Matrix (soil/water): SOIL_____		SDG No.: 39390
Level (low/med): LOW_____		Lab Sample ID: 39390.02
% Solids: 83.0		Date Received: 07/13/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

J CP  
2/2/2000

Color Before: BROWN\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: MEDIUM  
Color After: YELLOW\_\_\_\_ Clarity After: \_\_\_\_\_ Artifacts: \_\_\_\_\_

Comments :

CLIENT\_ID\_=SGRBHS0017000N1

FORM I - IN

NA 4/13

05108

CLIENT SAMPLE ID

018000N1

SDG No.: 39390

Lab Sample ID: 39390.03  
Date Received: 07/13/99

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Color Before: BROWN\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: MEDIUM  
Color After: YELLOW\_\_\_\_ Clarity After: \_\_\_\_\_ Artifacts: \_\_\_\_\_

Comments :

CLIENT\_ID\_=SGRBHS0018000N1

FORM I - IN

65109

# **USACE Data Comparability Report**

05110